JVC

SERVICE MANUAL

SUPER VHS EDITING RECORDER

HR-S10000U

S VHS

Hi-Fi

HQ
High Quality

SPECIFICATIONS

GENERAL

Power requirement	: AC 120 V∿, 60 Hz
Power consumption	: 63 W
Temperature	
Operating	: 5°C to 40°C (41°F to 104°F)
Storage	: −20°C to 60°C (−4°F to 140°F)
Operating position	: Horizontal only
Dimensions (WxHxD)	: 475 x 149 x 402 mm (18-3/4" x 5-7/8" x 15-7/8")
Weight	: 12.2 kg (26.9 lbs)
Format	: S-VHS/VHS NTSC standard with Hi-Fi audio
Tape width	: 12.65 mm (1/2 inch)
Tape speed (SP)	: 33.35 mm/sec (1-5/16 ips)
(EP)	: 11.12 mm/sec (7/16 ips)
Maximum recording time (SP)	: 160 min. with T-160 video cassette
(EP)	: 480 min. with T-160 video cassette

VIDEO

Signal system	: NTSC-type color signal and separated Y/C signals conforming to NTSC, 525 lines/60 fields
Recording system	: Rotary, two-head helical scan system with slant double-azimuth combination video heads
Input	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	: 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	: 45 dB (Rohde & Schwarz noise meter) with PICTURE sharpness control at center position
Horizontal resolution	: More than 400 lines (S-VHS)/ 240 lines (VHS) with PICTURE sharpness control at center position

AUDIO

Recording system	: Longitudinal track
No. of channels	: 2 normal audio channels
Input	: −8 dBs, more than 50 k-ohms, unbalanced
Output	: −6 dBs, less than 1 k-ohm, unbalanced (100 k-ohms, load)
Signal-to-noise ratio	: More than 40 dB
Frequency range	: 70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system	: Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	: 2 Hi-Fi audio channels
Frequency response	: 20 Hz to 20,000 Hz
Dynamic range	: More than 90 dB
Wow and flutter	: Less than 0.005% WRMS

TUNER

Tuning system	: Frequency synthesized tuner
Channel coverage	
(VHF)	: Channels 2 — 13
(UHF)	: Channels 14 — 69
(CATV)	: 113 channels
RF output	: Channel 3, 4 or OFF (switchable; preset to channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	: Quartz-crystal
Program capacity	: 14-day programmable timer/8 programs

ACCESSORIES

Provided accessories	: Antenna cable (F-type), Matching transformer, Infrared remote control unit, "AA"-size battery x 2, Audio cable, Video cable, Pause control cable, S-VIDEO cable (4-pin),

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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No. 82127
August 1989

NOTE: For a technical description, please refer to Technical Guide VTG82044 HR-S10000 NTSC.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

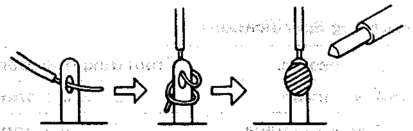


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

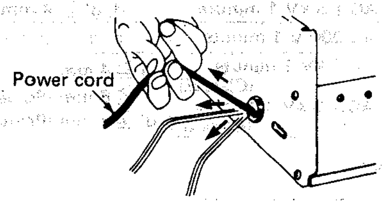


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number :** E03830-001
    2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

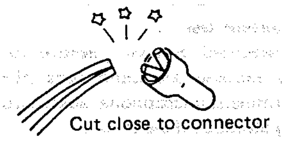


Fig. 3

       (2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

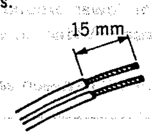


Fig. 4

       (3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

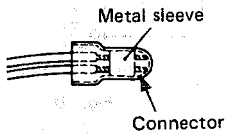


Fig. 5

       (4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

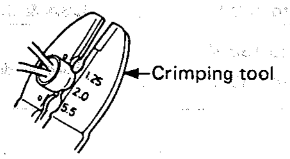


Fig. 6

       (5) Check the four points noted in Fig. 7.

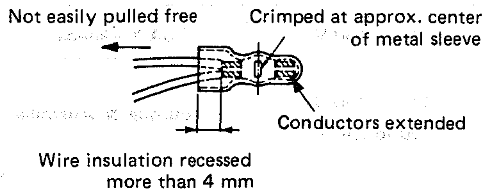

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

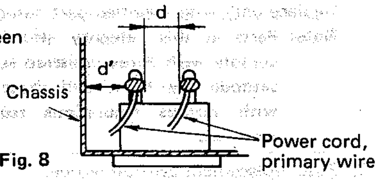


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

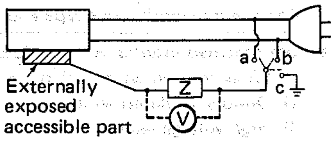


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

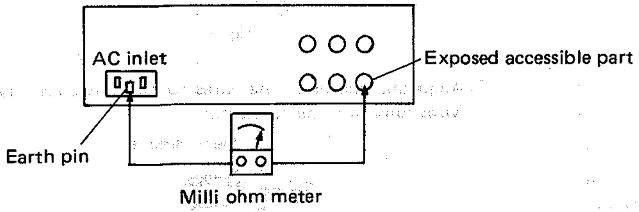


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

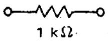
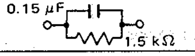
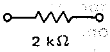
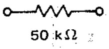
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	 1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC

INSTRUCTIONS

HR-S10000U

SUPER VHS EDITING RECORDER

VOL.1

GENERAL INFORMATION & PREPARATIONS

JVC
Super VHS

S VHS

Hi-Fi STEREO

HQ

For Customer Use:
Enter below the Serial No. which is located on the rear of the cabinet. Retain this information for future reference.

Model No. **HR-S10000U**

Serial No.

PU30425-1065

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

This video cassette recorder should be used with AC 120 V∿, 60 Hz only.
CAUTION:
To prevent electric shocks and fire hazards, do NOT use any other power source.

CAUTION
TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

CAUTION
When you are not using the HR-S10000U for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.

S VHS

Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".

Thank you for purchasing the JVC HR-S10000U Super VHS Editing Recorder. Conceived to provide creatively ambitious videophiles with the quality and flexibility necessary for advanced editing and creative applications, this unit is much more than just a Super VHS VCR with added-on editing features. Moreover, in spite of all its sophisticated and post-production capabilities, the HR-S10000U also functions marvelously as a regular VCR.`

To aid you in making the most of its numerous capabilities, instructions are given in three easy-to-follow volumes:

VOL. 1 GENERAL INFORMATION & PREPARATIONS
VOL. 2 BASIC OPERATIONS
VOL. 3 EDITING OPERATIONS

The contents of all three volumes are shown together on page 5 of VOL. 1. Use that page as a cross-reference and make it a point to keep all three volumes together to refer to any one of them at any time when necessary.

Before using this video recorder, read all instructions carefully so that you will obtain the best results from your HR-S10000U.

ATTENTION:
Pour prévenir l'électrocution, ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.

NOTE: The rating plate and the safety caution are on the rear of the unit.

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A Consumer Video Products Safety Guide

Electrical energy can perform many useful functions. But improper use can result in potential electrical shock or fire hazards. This unit has been engineered and manufactured to assure your personal safety. In order not to defeat the built-in safeguards, observe the following basic rules for its installation, use and servicing.

ATTENTION:
Follow and obey all warnings and instructions marked on your video product and its operating instructions. For your safety, please read all the safety and operating instructions before you operate this unit and keep this operating instruction manual for future reference.

INSTALLATION

1. Grounding or Polarization
(A) Your video product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.
If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
(B) Your video product may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

2. Power Sources
Operate your unit only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. If your unit is intended to operate from battery power, or other sources, refer to the operating instructions.

3. Overloading
Overloaded power outlets and extension cords are dangerous; so are frayed cords and broken plugs. Any of these may result in a shock or fire hazard. Call your service technician for replacement of such cords and plugs. Extension cords or adaptors that defeat the safety purpose of polarized or 3-wire grounding-type plug power cords should not be used.

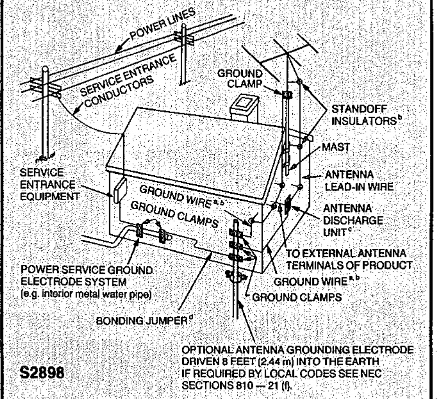
4. Power Cord Protection
Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

5. Ventilation
Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the unit and to protect it from overheating, these openings must not be blocked or covered.
- Do not block the openings by placing the unit on a bed, sofa, rug or other similar surface.
- Do not place the unit near or over a radiator or heat register.
- Do not place the unit in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

ANTENNA INSTALLATION INSTRUCTIONS

1. Outdoor Antenna Grounding
If an outside antenna or cable system is connected to the video recorder or tuner, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements for the grounding electrode.

2. Power Lines
To avoid the possibility of a fatal electrical shock, outdoor antennas and lead-in wires should be kept well away from overhead power lines or other electric light or power circuits, or from where they can fall onto such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.


EXAMPLE OF ANTENNA GROUNDING ACCORDING TO NATIONAL ELECTRICAL CODE INSTRUCTIONS CONTAINED IN ARTICLE 810 — "RADIO AND TELEVISION EQUIPMENT"

POWER LINES
SERVICE ENTRANCE CONDUCTORS
GROUND CLAMP
STANDOFF INSULATORS^b
MAST
SERVICE ENTRANCE EQUIPMENT
ANTENNA LEAD-IN WIRE
GROUND WIRE^a,b
GROUND CLAMPS
ANTENNA DISCHARGE UNIT^c
TO EXTERNAL ANTENNA TERMINALS OF PRODUCT
POWER SERVICE GROUND ELECTRODE SYSTEM (e.g. interior metal water pipe)
GROUND WIRE^a,b
GROUND CLAMPS
BONDING JUMPER^d
OPTIONAL ANTENNA GROUNDING ELECTRODE DRIVEN 8 FEET (2.44 m) INTO THE EARTH IF REQUIRED BY LOCAL CODES SEE NEC SECTIONS 810 — 21 (f).
S2898

a
Use No. 10 AWG (5.3 mm^2) copper, No. 8 AWG (8.4 mm^2) aluminum, No. 17 AWG (1.0 mm^2) copper-clad steel or bronze wire, or larger, as a ground wire.

b
Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 — 6 feet (1.22 — 1.83 m) apart.

c
Mount antenna discharge unit as close as possible to where lead-in enters house.

d
Use jumper wire not smaller than No. 6 AWG (13.3 mm^2) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21 (j).

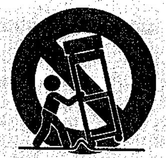
USE

1. Accessories
To avoid personal injury:

- Do not place this video product on an unstable cart, stand, tripod, bracket, or table. It may fall, causing serious injury to a child or adult, and serious damage to the appliance.
- Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the video product.
- Use a mounting accessory recommended by the manufacturer and follow the manufacturer's instructions for any mounting of the appliance.
- Do not try to roll a cart with small casters across thresholds or deep-pile carpets.

1A.
An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

PORTABLE CART WARNING
(symbol provided by RETAC)



S3126A

2. Water and Moisture
Do not use this video product near water — for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool and the like.

3. Object and Liquid Entry
Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on this video product.

4. Attachments
Do not use attachments not recommended by the manufacturer of this video product as they may cause hazards.

5. Cleaning
Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. Lightning
For added protection for the video recorder or tuner during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power-line surges.

SERVICING

1. Servicing
If your video product is not operating correctly or exhibits a marked change in performance and you are unable to restore normal operation by following the detailed procedure in its operating instructions, do not attempt to service it yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

2. Damage Requiring Service
Unplug the video product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the video product.
c. If the video product has been exposed to rain or water.
d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
e. If the video product has been dropped or the cabinet has been damaged.
f. When the video product exhibits a distinct change in performance — this indicates a need for service.

3. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

4. Safety Check
Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine that the video product is in safe operating condition.

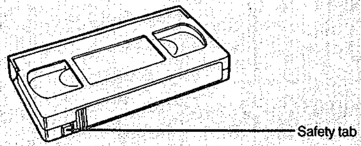
PRECAUTIONS

Handling and storage

- Avoid using the recorder under the following conditions:
  - — extremely hot, cold or humid places,
  - — dusty places,
  - — near appliances generating strong magnetic fields,
  - — places subject to vibrations, and
  - — poorly ventilated places.
- Be careful of moisture condensation.
  Avoid using the recorder immediately after moving from a cold place to a warm place. The water vapor in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully.
  - Do not block the ventilation openings.
  - Do not place anything heavy on the recorder.
  - Do not place anything which might spill and cause trouble on the top cover of the recorder.
  - Use in horizontal (flat) position only.
- In case of transportation,
  - Avoid violent shocks to the recorder during packing and transportation.
  - Before packing, be sure to remove the cassette from the recorder.

Video cassettes

- This recorder employs S-VHS and VHS cassettes only.
  S-VHS: ST-120 for 120(SP)/360(EP) minutes, ST-60 for 60/180 minutes and ST-30 for 30/90 minutes of recording.
  VHS: T-160 for 160(SP)/480(EP) minutes, T-120 for 120/360 minutes, T-90 for 90/270 minutes, T-60 for 60/180 minutes and T-30 for T-30/90 minutes of recording.
- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed. If you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.



- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.

Moisture condensation

- If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is called moisture condensation.
- Moisture condensation on the head drum, one of the most crucial parts of the video recorder, will cause damage to the tape.
- Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions.
- In conditions where moisture condensation may occur, keep the power cord plugged in an AC outlet and the power switched on; this would help prevent condensation from occurring. When condensation has occurred, it will not evaporate quickly once the power is switched on. Wait a few hours for the recorder to become dry.

Operation

- When a cassette is loaded, the power is switched on and, if the safety tab has been removed, playback begins automatically.
- The cassette can be unloaded even when the power is off. Pressing the EJECT button turns the power on and, after ejection of the cassette, shuts it off automatically in this case.
- As long as the TIMER button is engaged with the TIMER indicator lit, the POWER and EJECT buttons have no effect and unloading of a cassette is not possible. If a cassette has not yet been inserted, simply insert a cassette; the power will be switched on to load the cassette properly and, after completion of automatic loading, the Timer Recording Standby mode will be engaged with power off.

Remote control unit

- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to allow liquid to spill into the unit or dampen the terminals.
- Do not place heavy objects on the unit.
- Avoid leaving the unit in places subject to direct sunlight or extremely high temperatures.

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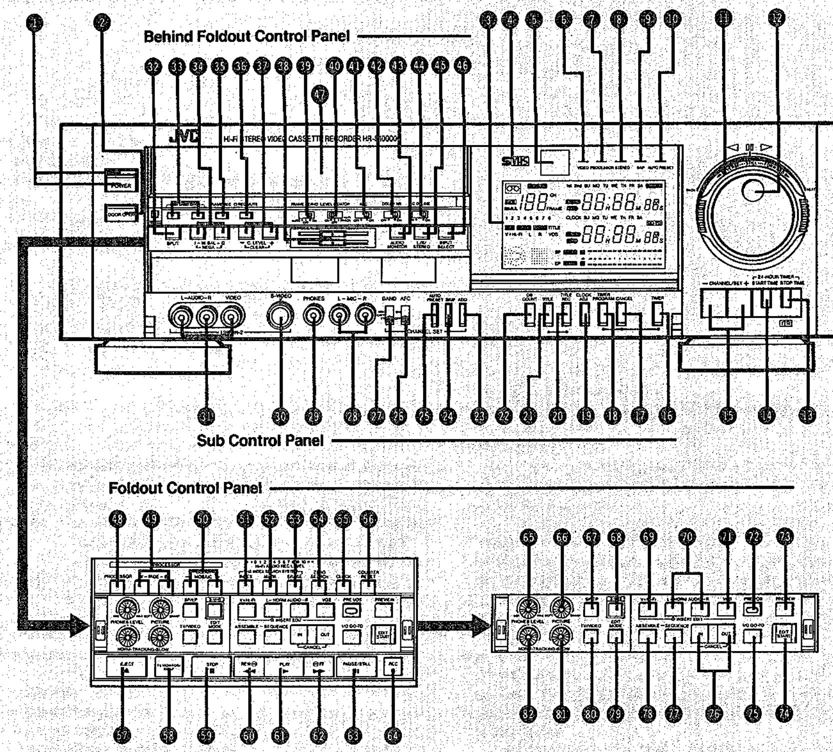
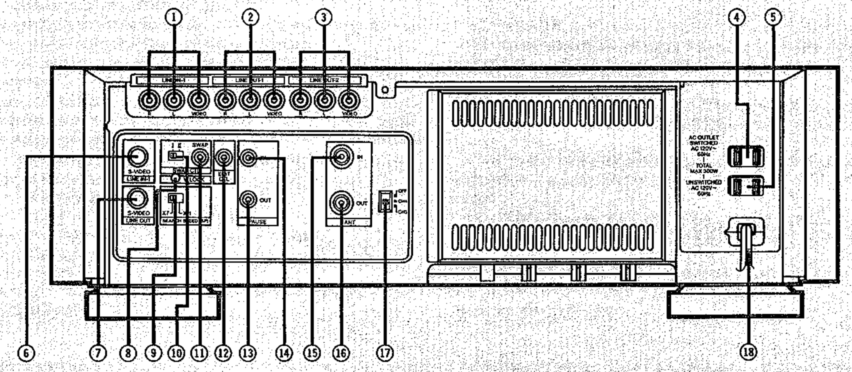
GENERAL REFERENCE DIAGRAMS

Front Panel



Rear Panel



FEATURES

High-quality pictures and sound

- Superb Super VHS pictures with Twin-CCD Logical Comb Filter for high-precision Y/C separation
- Super DA-4 head system with oval-cut video heads
- Color response improvement circuit (CRI)
- Improved Hi-Fi VHS sound quality with independent Audio Process circuit board
- Advanced switching noise reduction system
- Stereo-capable linear audio track with Dolby* noise reduction
- Gold-plated audio input and output connectors (RCA)

Advanced editing functions

- Insert and assemble editing, with 8-event preprogrammable assemble editing facilities
- VOS (Video-On-Sound) editing, with pre-VOS audio recording capability
- Automatic preroll editing in both insert and assemble editing
- Split-insert editing to allow independent insertion of selected signals
- Flying erase head
- Edit Control and Pause Control connectors for flexibility in building editing suites
- EE monitor/Swap control functions
- Preview editing and In/Out Go-To to check the edit-in and edit-out points
- Real-time audio monitoring even in the Jog or Shuttle mode
- Selectable frame recording
- AV recording mute function
- High-speed erase at 11 times normal speed
- Comprehensive tape access features for easy location of edit points, including Jog/Shuttle control dials

Built-in color processor

- Color level correction and white balance correction
- Special effects such as Negative/Positive image reversal, monochrome, monotone, and variable mosaic effects
- Split-screen for checking pictures before and after correction
- White and black fader, with or without Hi-Fi audio fade
- Preprogrammed fades at edit points

Built-in character generator

- 8-Page memory for titling and dating convenience
- Three different character styles, 4 different character sizes, and 8 selectable background colors

Plus all the features found on JVC's top-end VCRs

- 181-Channel cable-compatible frequency synthesized tuner with MTS decoder
- LCD-programmable TV/VCR unified remote control
- 24-Hour timer, plus 14-day/8-event programmable timer
- Realtime Go-To, Realtime Search, Index Search with mark/erase, Intro Search, Counter Zero Search and Skip Search
- Automatic functions including Next-Function Memory
- Retake function to edit out unnecessary segments during off-air recording

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* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

CONTROLS, INDICATORS AND CONNECTORS

Front Panel

① **POWER button with LED indicator**
Loading a cassette also turns the power on.

② **DOOR OPEN button**
Press to open the foldout control panel. To close the door, lift it up and press in.

③ **Display Panel**
See page 13.

④ **S-VHS mode indicator**

⑤ **Infrared beam receiving window**

⑥ **VIDEO mode indicator**

⑦ **PROCESSOR indicator**
Lights when the built-in color processor is activated.

⑧ **STEREO indicator**
Lights when a stereophonic program is being received.

⑨ **SAP indicator**
Lights when a TV program accompanied by a second audio program is being received.

⑩ **AUTO PRESET indicator**
Lights while in the Channel Auto Preset mode.

⑪ **SHUTTLE ring (outer control)**
Use for variable-speed search, for timer and clock settings, and for character generator operation.

⑫ **JOG dial (inner control)**
Use for jog search, for timer and clock settings, for frame recording, and for character generator operation.

⑬ **24-HOUR TIMER STOP TIME button**
Press to set the stop time for the 24-hour instant timer. Pressing this button advances the time data in 30-minute increments. Use the JOG dial to adjust to the exact minute. This button can also be used as the ITR button for automatic switch-off after a predetermined time.

⑭ **24-HOUR TIMER START TIME button**
Press to set the start time for the 24-hour instant timer. Pressing this button advances the time data in 30-minutes increments. Use the JOG dial for fine adjustment to the exact minute.

⑮ **CHANNEL/SET +/–buttons**
Press for up/down channel scan tuning.

Sub-Control Panel

⑯ **TIMER button**
Press to engage the Timer Standby mode.

⑰ **CANCEL button**
Press to cancel the preset timer data. Also press this button in the Title Compose mode when it is necessary to delete any characters or pages.

⑱ **TIMER PROGRAM button**
Press to engage the Timer Set mode. Further pressing of the button advances program numbers.

⑲ **CLOCK ADJ button**
Press to engage the Clock Set mode.

⑳ **TITLE REC button**
Press when a composed title is to be recorded.

㉑ **TITLE button**
Press to compose a title using the built-in character generator.

㉒ **OS COUNT button**
Press to obtain a 5-second on-screen display counter reading in hours, minutes, seconds, and frames. Press again to cancel the on-screen counter reading.

㉓ **ADD button**
Press to restore skipped channels.

㉔ **SKIP button**
Press to remove unwanted channels. These channels will then be skipped over during up/down channel scan tuning.

㉕ **AUTO PRESET button**
Press to engage the Auto Channel Set mode in which available channels will automatically be stored with unavailable channels being skipped, with the AUTO PRESET indicator lit.

㉖ **AFC switch**
Normally set to OFF. If no picture appears, reset the switch to ON.

㉗ **BAND switch**
Set to TV if your antenna system is regular broadcast VHF/UHF, VHF only, or UHF only.
Set to CATV if your antenna system is a cable TV line with or without a cable converter/decoder.
Set to HRC if your antenna system is an HRC (Harmonic Related Carrier) line.

㉘ **MIC L/R jacks**
Connection of a monaural source to the L jack allows recording of the same sound on both the left and right channels. Microphone mixing is possible.

㉙ **PHONES jack**

㉚ **LINE IN-2 S-VIDEO connector**
If the external source is an S-VHS deck, use this connector together with the LINE IN-2 AUDIO connectors. To select the input from the LINE IN-2 S-VIDEO connector, press the INPUT SELECT button ㊻ to obtain the "S2" indication on the screen and display panel.

㉛ **LINE IN-2 connectors**
A set of audio and video input connectors for recording from an external source. To select the input from the LINE IN-2 connectors, press the INPUT SELECT button ㊻ to obtain the "L2" indication on the screen and display panel.

Behind Foldout Control Panel

㉜ **SPLIT button**
While the color processor is in operation, press to check the effects of the processor on the split screen. The left half of the screen will show the picture before correction, and the right half, after correction.

㉝ **HIGH SPEED ERASE buttons**
While in the Record-Pause mode, press these two buttons simultaneously to erase all the recorded signals. Erasing will be done at a speed about 11 times normal.

㉞ **W. BAL I/Q buttons**
While in the Processor mode and while pressing either of these buttons, press the C. LEVEL + or – button to correct the white balance. When both I and Q buttons are pressed simultaneously, the picture will be reversed to negative. To restore the positive picture, press the two buttons again simultaneously.

㉟ **FRAME REC button**
While in the Record-Pause mode, press to engage the Frame Record mode. The number of frames to be recorded at a time can then be set with the JOG dial — from 3 to 33 frames. The initial setting is 7 frames. Frame recording is convenient for making animations.

㊱ **REC MUTE button**
While in the Record-Pause mode, hold this button pressed to make a tape section in which both the video and audio signals are muted. When the button is released, the tape stops in the Record-Pause mode. When the tape is played back, the muted section shows a blank black screen.

㊲ **C. LEVEL –/+ buttons (Color Level)**
While in the Processor mode, press the respective button to increase or decrease color intensity. When used in combination with the W. BAL I/Q buttons, these buttons function to adjust the white balance. Pressing both buttons simultaneously cancels both the White Balance and Color Level control modes.

㊳ **Hi-Fi AUDIO REC LEVEL controls**
Control the Hi-Fi audio recording level manually with the ALC switch ㊶ set to OFF.

㊴ **FRAME SERVO switch**
Normally set to AUTO. When editing or dubbing from a tape, set to either OFF or ON depending on the accuracy at which the sync signal was recorded on the source tape.

㊵ **LEVEL INDICATOR switch**
Selects the function of the audio level indicators.

㊶ **ALC switch**
Set to ON to activate the Automatic Level Control circuit for hi-fi audio. Set to OFF when the hi-fi audio recording level is to be controlled manually. (This switch must be set to OFF if the built-in audio fader is to be applied.)

㊷ **DOLBY NR switch**
Functions to reduce tape hiss of sound recorded on the two-channel (stereo) normal audio track.

㊸ **AUDIO MONITOR button**
Selects the audio track(s) to be output; Hi-Fi, normal or a mixture of both.

㊹ **AC ONLINE switch**
Controls power flow through the rear panel SWITCHED AC OUTLET ④: ON for SWITCHED, and OFF for UNSWITCHED.

㊺ **L/R/STEREO button**
Selects the audio channel(s) to be output, for both Hi-Fi and normal audio.

㊻ **INPUT SELECT button**
Selects the input signal depending on which set of input connectors is being used (LINE IN-1, LINE IN-1 S-VIDEO, LINE IN-2, LINE IN-2 S-VIDEO). Simulcast recording is also selected with this button. The selected input — L1, S1, L2, S2, and SIMUL — will be indicated on the display panel and the screen.

㊼ **Cassette loading slot**

Inside-the-Door Control Panel

㊽ **PROCESSOR button**
Press to engage the Processor mode. White balance adjustment, color level control, fades, and special effects are all carried out in the Processor mode. To operate these functions, first press the PROCESSOR button.
To cancel the Processor mode, press it again.

㊾ **FADE W/B buttons**
Press either button to apply fade-in and fade-out effects; W for white fades, and B for black fades.

㊿ **MOSAIC (CLEAR) –/+ buttons**
Press either button to engage the Mosaic mode in which the picture is reproduced in square patterns. To increase the size of the square, further press the "+" button until the desired size is reached. To decrease the size of the square, press the "–" button. To cancel the Mosaic mode, press both buttons simultaneously, or press the "–" button until the mosaic pattern disappears.

(51) **INDEX button**
Press to engage the Index Search mode.

(52) **MARK button**
While in the Record or Play mode, press to put an additional index code on the tape.

(53) **ERASE button**
While in the Play mode, press to erase an unnecessary index code.

(54) **ZERO SEARCH button**
Press to locate a tape position corresponding to the counter reading of "0$_{H}$ 00$_{M}$ 00$_{S}$".

(55) **CLOCK button**
Press to change the display panel from the Timer Set mode to the Clock mode.

(56) **COUNTER RESET button**

(57) **EJECT button**

(58) **TV MONITOR/SWAP button**
Usually functions as a TV MONITOR button. While in the Play mode, hold this button pressed to check the input signal (Electric-Electric signal) coming from a connected external source or the built-in tuner. Release this button to return to the playback picture of the HR-S10000U. If the external source is connected to the HR-S10000U's SWAP terminal⑪ (this connection is possible only with designated JVC VCRs), this button functions as a SWAP control button which enables the external source to be controlled from the HR-S10000U's control panel. In order to do this, operate the HR-S10000U's control buttons while holding the TV MONITOR/SWAP button pressed.

(59) **STOP button**

(60) **REW button**

(61) **PLAY button**

(62) **FF button**

(63) **PAUSE/STILL button**
To cancel the Pause or Still mode, press the PLAY button.

(64) **REC button**
Press this button on its own to start recording. To engage the Record-Pause mode, press the PAUSE/STILL button, and to restart recording, press the PLAY button.

(65) **PHONES LEVEL control**

(66) **PICTURE sharpness control**
Turn for softer or sharper playback picture.

(67) **SP/EP button**
Press to select the recording speed (Standard Play or Extended Play).

(68) **S-VHS button**
When an S-VHS cassette is loaded, press to select the recording mode (VHS or S-VHS).

(69) **INSERT EDIT V + Hi-Fi button**
Press to insert video and Hi-Fi audio signals.

(70) **INSERT EDIT NORM AUDIO L/R buttons**
Press either button or both to insert a normal audio signal. Each channel of the normal audio track can be inserted independently.

(71) **INSERT EDIT VOS (Video-On-Sound) button**
Press to record a video signal on a tape with audio signals previously recorded in the Pre-VOS mode.

(72) **PRE-VOS button**
Press to record only audio signals in preparation for VOS recording. Video is recorded at the black level.

(73) **PREVIEW button**
Press to rehearse editing or to check edit-in/edit-out points without recording. In assemble editing, the edit-in point of the first program segment can be checked.

(74) **EDIT START**
Press to execute programmed editing.

(75) **I/O GO-TO button**
While pressing this button, press either the IN or OUT button (76) to locate the edit-in or edit-out point.

(76) **IN/OUT (CANCEL) buttons**
Press the respective button to store an edit-in or edit-out point in memory during either assemble or insert editing. Pressing both buttons simultaneously cancels the indicated program.

(77) **SEQUENCE button**
Press to select the program number of an edit in pre-programmed assemble editing.

(78) **ASSEMBLE button**
Press to engage the Assemble Edit mode.

(79) **EDIT MODE button**
Press for better results while dubbing or editing.

(80) **TV/VIDEO button**
TV mode for viewing broadcast TV programs. VIDEO mode for viewing tape programs via RF connection. If the RF output channel select switch ⑰ on the rear panel is set to OFF, this button has no effect.

(81) **SLOW TRACKING control**
Turn to correct mistracking (video) during slow-motion playback.

(82) **NORM TRACKING control**
Turn to correct mistracking (video and Hi-Fi audio) during normal playback.

Rear Panel

① **LINE IN-1 connectors**
Accept video and audio signals from an external source. To record signals from these connectors, select "L1" with the INPUT SELECT button ㊻. For simulcast recording, use these connectors and select "SIMUL".

② **LINE OUT-1 connectors**

③ **LINE OUT-2 connectors**
Deliver video and audio signals to another video component.

④ **SWITCHED AC OUTLET**
Supplies power to external equipment. Functions as the SWITCHED outlet when the AC ONLINE switch ㊹ is set to ON.

⑤ **UNSWITCHED AC OUTLET**
Supplies power to external equipment regardless of whether the recorder is on or off.

⑥ **LINE IN-1 S-VIDEO connector**
Accepts a separate Y/C video signal from an external source. For audio transmission, use the LINE IN-1 AUDIO connectors. To record this set of signals, select "S1" with the INPUT SELECT button ㊻.

⑦ **LINE OUT S-VIDEO connector**
Delivers a separate Y/C video signal to another video component. For audio transmission, use either the LINE OUT-1 or LINE OUT-2 AUDIO connectors.

⑧ **V. LOCK control**
Turn to correct vertical jitter in the Still mode.

⑨ **SEARCH SPEED (SP) select switch**
The maximum search speed in the SP mode can be selected between 7 times and 11 times normal.

⑩ **SWAP CTL switch**
Set to II, when editing with two HR-S10000U's. When using a different model of VCR together with the HR-S10000U, set to I.

⑪ **SWAP terminal**
If a second VCR is equipped with a SWAP terminal, connect to it with a stereo mini cable. Then the second VCR can be controlled from the HR-S10000U's controls, or the HR-S10000U can be controlled from the second VCR, if it is equipped with a Swap Control function.

⑫ **EDIT CTL terminal**
When editing with two HR-S10000U's, connect to the EDIT CTL terminal of the second HR-S10000U with a stereo mini cable.

⑬ **PAUSE OUT terminal**
Connect to the REMOTE PAUSE terminal of a second VCR (if so-equipped) for synchronized preroll operation.

⑭ **PAUSE IN terminal**
When using the HR-S10000U as the source player, connect to the PAUSE OUT terminal of a second VCR (if so-equipped) for synchronized preroll operation. This terminal can also be used for editing from a JVC VideoMovie camera/recorder using the Master Edit Control system.

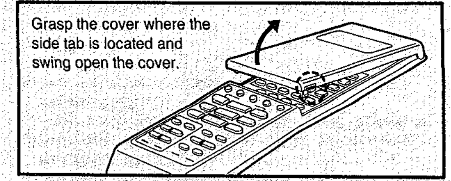
⑮ **ANT IN terminal**
Connect an antenna cable or a cable TV line. If necessary, use the matching transformer (provided).

⑯ **ANT OUT terminal**
Connect to the all-channel antenna connector (female F) of your TV receiver using the provided antenna cable.

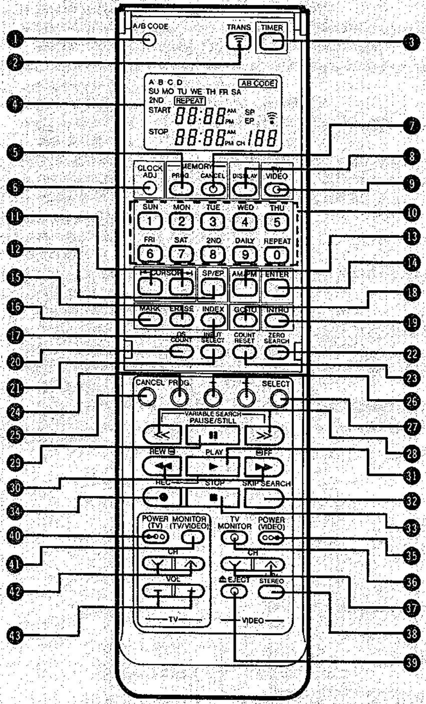
⑰ **ANT output channel select switch**
See "VIDEO CHANNEL SETTING" on page 16.

⑱ **Power cord**

REMOTE CONTROL UNIT



Grasp the cover where the side tab is located and swing open the cover.



① A/B CODE button
When using two JVC video decks, press to switch this remote control from the "A" mode to "B" mode, or vice versa, depending on the deck to be controlled. (See page 12.)

② TRANS button
Press to transfer the data held in the remote control's timer memory to the recorder. The clock data cannot be transferred.

③ TIMER button
Functions same as VCR's ⑯.

④ LCD (Liquid Crystal Display) panel
Refer to this panel when programming the remote control's built-in timer memory. Normally functions as a clock.

⑤ MEMORY PROG. button
Press to program the remote control's timer memory.

⑥ CLOCK ADJ button
Press to adjust the clock of the remote control.

⑦ MEMORY CANCEL button
Press to cancel the programmed data in the remote control's timer memory.

⑧ DISPLAY button
- Press to change the Program Set display on the LCD to the clock display.
- Press to instantly cancel the on-screen Program Set display.

⑨ TV/VIDEO button

⑩ Numeric keys
Ordinarily press to select a desired channel. To change channels instantly, press the ENTER button immediately after pressing the numeric keys.
Clock setting: See page 12.
Channel setting: See page 24.
Timer Programming: }
Realtime Go-To: } See VOL. 2.
Index search: }

⑪ CURSOR buttons
Use these buttons to advance the cursor or move it back to a previous position during timer programming.

⑫ SP/EP select button

⑬ AM/PM button
Press to specify AM or PM in clock or timer setting on the remote control.

⑭ ENTER button
- Press to instantly tune in the channel selected with 10-key input.
- Press to move the cursor in clock or timer setting on the remote control.

⑮ ERASE button
Functions same as VCR's (53).

⑯ MARK button
Functions same as VCR's (52).

⑰ INDEX button
Functions same as VCR's (51).

⑱ GO-TO button
Press to engage the Realtime Go-To mode. (See VOL. 2.)

⑲ INTRO button
Press to engage the Intro Search mode. (See VOL. 2.)

⑳ OS COUNT button
Functions same as VCR's ㉒.

㉑ INPUT SELECT button
Functions same as VCR's ㊻.

㉒ ZERO SEARCH button
Functions same as VCR's (54).

㉓ COUNT RESET button
Functions same as VCR's (56).

㉔ PROG. button
Press to program the recorder's timer. Functions same as VCR's ⑱.

㉕ CANCEL button
Press to cancel the recorder's timer data. Functions same as VCR's ⑰.

㉖ Set buttons (–/+)
Press to adjust data indications in direct timer setting operations.

㉗ SELECT button
Press to proceed to the next step or move the cursor in direct timer setting operations.

㉘ VARIABLE SEARCH buttons
Press either button to search for a specific segment of the program at variable speeds.

㉙ PAUSE/STILL button

㉚ REW and FF buttons

㉛ PLAY button

㉜ SKIP SEARCH button
In the Play mode, press once to advance rapidly through the next 30 seconds of tape. This button may be pressed up to four times to zip through 2 minutes of tape. Press the PLAY button to cancel the Skip Search mode midway.

㉝ STOP button

㉞ REC button
Press together with the PLAY button ㉛ to start recording.

㉟ POWER (VIDEO) button
Press to turn the recorder power ON or OFF.

㊱ TV MONITOR button
Press during tape playback to monitor the picture and sound of the TV broadcast being received by the recorder's built-in tuner, or from a connected external video source.

㊲ CH ∨ / ∧ button

㊳ L/R/STEREO button
Functions same as VCR's ㊺.

㊴ EJECT button

TV Operation Buttons (designated TV models only)

㊵ POWER (TV) button
Press to turn the TV power on or off.

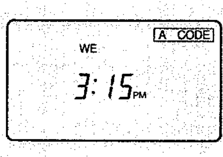
㊶ MONITOR (TV/VIDEO) button
Press to select the TV's operating mode.
TV: For viewing broadcast programs or tape programs via RF OUT connection.
VIDEO: For viewing programs via AV connection.

㊷ CH ∨ / ∧ buttons
Press to select a desired channel on the TV receiver.

㊸ VOL buttons
Press to decrease or increase the TV's sound volume.

Setting the LCD clock

The LCD clock is independent of the recorder's clock.



Insert 2 "AA"-size batteries (provided) into the remote control. The LCD shows a blinking "SU 12:00 AM".

1. Press the CLOCK ADJ button.
   - The day indication will blink.
2. Press the numeric key corresponding to the current day of the week, then press the ENTER button.
   - The clock indication will blink.
3. Key in the digits corresponding to the current hour and minute.
4. Press the AM/PM button to obtain correct indication, then press the ENTER button.
5. Press the CLOCK ADJ button at the exact instant of the time signal.

Remote Control Unit

A/B code switching

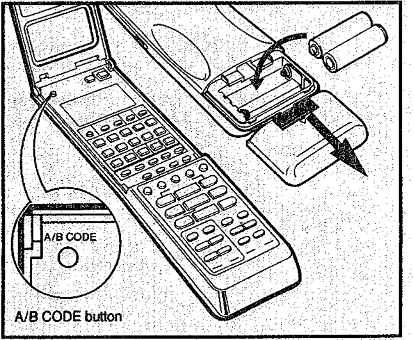
When you own two JVC video decks, this remote control can operate both decks separately; they do not respond simultaneously to the remote control's signal, if they are set to respond to different codes. Initially this recorder is set in the "A" code mode.
To change the mode carefully follow the instructions below:
(1) Unplug the power cord of the recorder from the AC outlet.
(2) Press the A/B CODE select button to engage the "B" code mode; "B CODE" will appear on the LCD.
(3) Plug the power cord of the recorder into the AC outlet.
(4) Turn on the power of the recorder using the remote control's POWER (VIDEO) button.
The recorder "memorizes" this B code and will respond only to the B code signals. Set the other deck to respond to the A code signals in the same procedure.

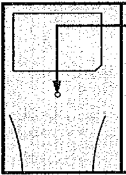
Note:
Do not operate other remote controls after you have plugged the recorder into the AC outlet and before you press the POWER (VIDEO) button of this remote control.

CAUTION:
Some televisions may malfunction in response to this remote control when used in the "B CODE" mode. If this should happen, switch the mode back to "A CODE".

Operating distance for remote control unit
The maximum operating distance is about 8 m (26 ft.).

Installing the batteries
1. Slide the battery compartment cover on the rear of the unit in the direction of the arrow (▼).
2. Insert 2 "AA"-size batteries (provided) in the correct directions into the battery compartment.
3. Replace the cover.

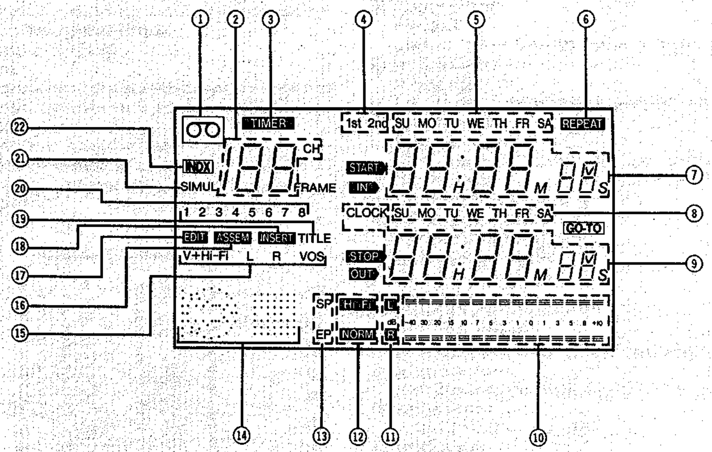




RESET button
Insert a pointed object into the hole to press the initialize button inside, when required. The memory for the LCD display will be cleared.
Normally do not touch this button.

Rear of the remote control unit

DISPLAY PANEL INDICATIONS



① "Cassette loaded" indicator

② • Shows tuned-in channel with "CH". While in the Auto Channel Preset mode, sequentially shows tuned-in channels. "PO" appears when all channels are skipped.
- Shows index number with "INDX" in the Index Search mode.
- Shows selected input (L1, S1, L2, S2).
- Shows selected number of frames with "FRAME" in the Frame Record mode.

③ Timer Standby mode indicator

④ Week indicators for timer programming: 1st (first) or 2nd (second)

⑤ Day indicators for timer programming.

⑥ Repeat indicator for timer programming.

⑦ • Shows date (month, day, year) when operating power is off.
- Shows timer start time with "START" for timer programming.
- Shows realtime tape counter reading when the VCR is operating.
- Shows specified Go-To destination together with "GO-TO".
- Shows edit-in point with "IN" for editing.

⑧ Shows current day of the week.

⑨ • Shows current time with AM or PM indication in the Clock mode. "CLOCK" appears to indicate the Clock mode.
- Shows timer stop time with "STOP" for timer programming.
- Shows edit-out point with "OUT" for editing.

⑩ Audio level indicators. The right-channel indicator also functions as a Hi-Fi tracking meter depending on the setting of the LEVEL INDICATOR switch.

⑪ Audio output channel indicators: L, R, or both for stereo.

⑫ Audio output track indicators: Hi-Fi, NORM, or both for a mixture of both.

⑬ Recording speed indicators: SP or EP

⑭ Operation mode indicators

Record	Record-Pause	Play	Still
○	○ ❚❚	▷	❚❚
Slow	**Forward Search**	**Reverse Search**	**FF**
▷ ❚❚	▷ ⏩	▷ ⏪	⏩
Rewind	**Audio Insert**	**Audio Insert-Pause**	**Video/Hi-Fi Audio Insert**
⏪	⊖	⊖ ❚❚	▷
Video/Hi-Fi Audio Insert-Pause	**Counter Search**		
▷ ❚❚	▷ Blinking	Blinking ❚❚	

⑮ Shows the selected signal(s) in the Insert Edit mode.

V + Hi-Fi: Video and Hi-Fi audio signals
L : Normal audio left-channel signal
R : Normal audio right-channel signal
VOS : Video-On-Sound recording

⑯ Assemble Edit mode indicator. Appears when the ASSEMBLE button is pressed.

⑰ Edit mode indicator. Appears when the EDIT MODE switch is pressed.

⑱ Insert Edit mode indicator. Appears when one of the INSERT EDIT buttons (V + Hi-Fi, NORM AUDIO L, R, VOS) is pressed.

⑲ Character generator mode indicator. Appears when the TITLE button is pressed.

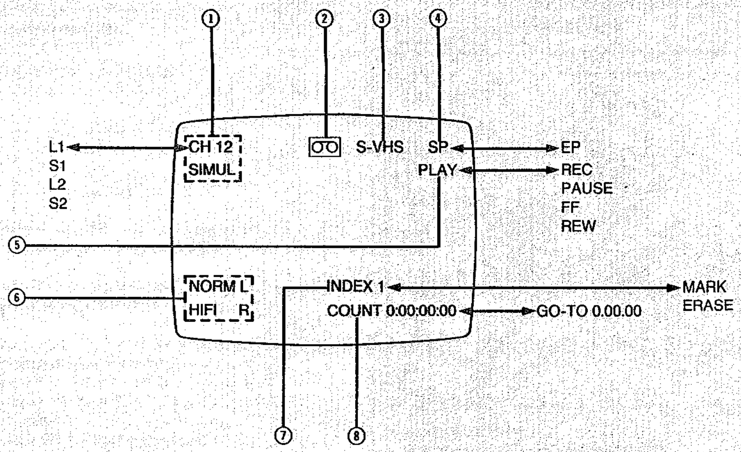
⑳ • Shows program number for timer programming.
- Shows sequence number for automatic assemble editing.
- Shows page number in character generator operation.

㉑ Simulcast indicator: selected with the INPUT SELECT button.

㉒ Blinks while an index code is being recorded or erased.

ON-SCREEN INDICATIONS

On-screen indications that appear in regular VCR operations are described here. For on-screen timer programming and auto-titling, refer to pages 11 and 14 of VOL. 2. A complete range of on-screen indications is also available for editing operations. These are fully described in VOL. 3 in connection with editing operations.



① Channel and selected input

Each time a different channel is selected in the Tuner mode, the number of that tuned-in channel is displayed for about 5 seconds. For simulcast recording, press the INPUT SELECT button to obtain "SIMUL" together with the channel number. Further pressing the INPUT SELECT button displays the selected input (L1, S1, L2, S2).

② "Cassette loaded" mark

This mark is displayed for about 5 seconds when a cassette is inserted, and blinks until the cassette is ejected when the EJECT button is pressed.

③ S-VHS mode

When the mode is changed, a 5-second display is available. No indication in the VHS mode.

④ Recording speed

When the Record mode is engaged, the selected speed (SP or EP) appears together with "REC".

⑤ Operation mode

PLAY: Displayed only when the mode is changed from Stop to Play. (No indication appears when special effects are applied in the Play mode.)
REC: Displayed for 5 seconds together with channel, "cassette loaded" mark and the recording speed (SP or EP).
PAUSE: Remains displayed as long as the Record-Pause mode continues.
FF/REW: Displayed for 5 seconds.

⑥ Audio output

When the audio output is changed with the AUDIO MONITOR or L/R/STEREO button, the selected output is displayed for 5 seconds except during playback.

⑦ Random access

INDEX: Displayed when the Index Search mode is engaged. When the search number is specified, this is also displayed until search is initiated.
MARK: Displayed when an index code is being recorded.
ERASE: Displayed when the ERASE button is pressed.

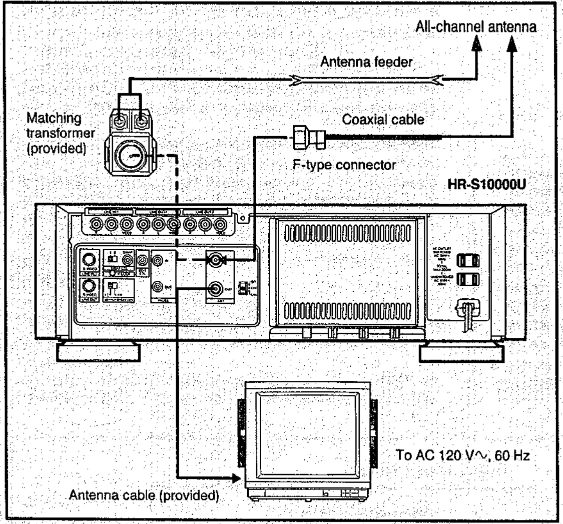
⑧ Counter data

COUNT: When the COUNTER RESET button is pressed, the counter is automatically displayed for 5 seconds. The counter data is also available at any time by pressing the OS COUNT button. To cancel it, press the OS COUNT button again. The counter shows tape time in hours, minutes, seconds and frames. (30 frames correspond to one second.)
GO-TO: When the GO-TO button is pressed, the counter changes to the Go-To mode accepting a go-to entry in hours, minutes and seconds.

CONNECTIONS

Connections for editing purposes are described in VOL. 3.

TO VHF AND UHF ANTENNAS



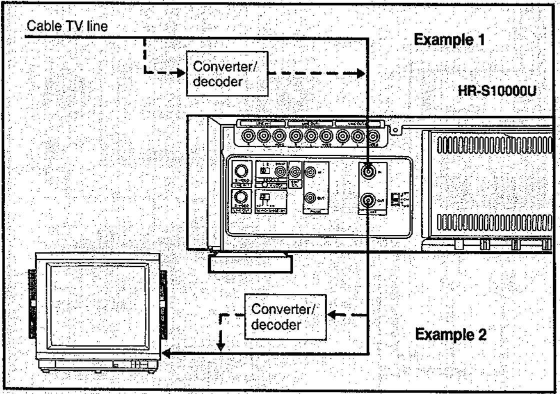
Procedure

- Remove the antenna cable from the TV receiver and reconnect to the HR-S10000U's ANT IN connector as illustrated. The HR-S10000U is then ready to record off-air programs.

  Notes:
  - If your antenna cable is a 300-ohm flat feeder, use the provided matching transformer.
  - If your antenna system has separate VHF/UHF lead-in wires, use an antenna mixer and connect its output to the HR-S10000U's ANT IN connector, either directly or through the provided matching transformer depending on the type of the mixer.
- Connect the HR-S10000U to the TV receiver using the 75-ohm antenna cable (provided).

  Note:
  If your TV is equipped with 300-ohm UHF input terminals and a 75-ohm VHF input terminal, use the antenna splitter (provided) to complete connection.

TO A CABLE TV LINE



Note:
If your cable TV system does not require a converter/decoder for scrambled signals, you can use the cable-compatible tuner built into the HR-S10000U for viewing and recording. In this case, simply connect the cable TV line to the ANT IN terminal of the recorder and the ANT OUT terminal of the recorder to your TV receiver. Please contact your cable TV company for any questions concerning hookups or cable TV operation.

Example 1

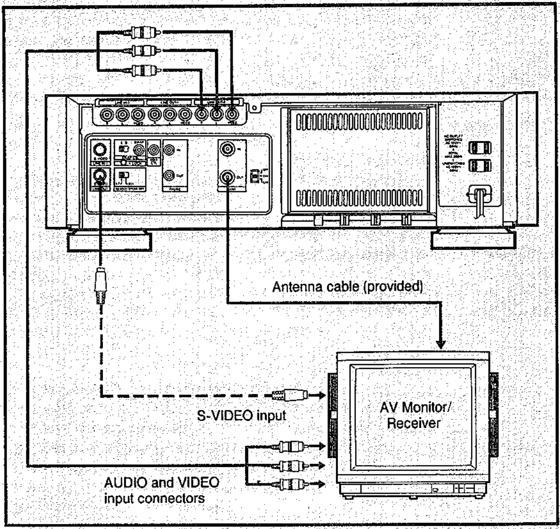
- You can record any scrambled cable TV channel while watching it.
- Select the recording channel on the converter/decoder.
- Set the recorder to the output channel of the converter/decoder (channel 3 or 4).
- Set the TV receiver to channel 3 or 4.
- Set the TV/VIDEO button on the recorder to VIDEO (the VIDEO indicator lights).

Example 2

- You can record any non-scrambled cable TV channel while watching it or any other channel including "scrambled signal" channels.

  Note:
  "Scrambled signal" channels cannot be recorded.
- Select the recording channel on the recorder.
- Select the viewing channel on the converter/decoder.
- Set the TV receiver to the output channel of the converter/decoder (channel 3 or 4).
- Set the TV/VIDEO button as necessary.

TO AN AV TELEVISION



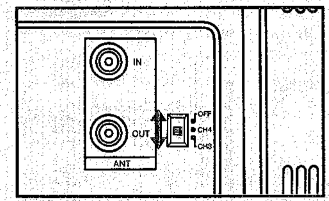
1. Connect the LINE OUT-1 or -2 L and R connectors of the HR-S10000U to the AV television's AUDIO IN jacks.
2. Connect the VIDEO terminal of the same LINE OUT group to the AV television's VIDEO IN jack. If your AV television is equipped with an S-VIDEO input, use the LINE OUT S-VIDEO terminal.
3. Connect the ANT OUT terminal to the ANTENNA IN connector of the AV television.

   Note:
   With this connection, it is recommended that you set the RF output channel select switch ⑰ to the OFF position. Then the ANT OUT terminal always delivers antenna signals directly to the television. To view video recordings, set the television to the AV mode.

VIDEO CHANNEL SETTING

The built-in RF converter permits playback of video and audio recordings through a TV receiver. The signals from the RF converter are viewed through a vacant channel not used for broadcasting in your viewing area.

(Rear)

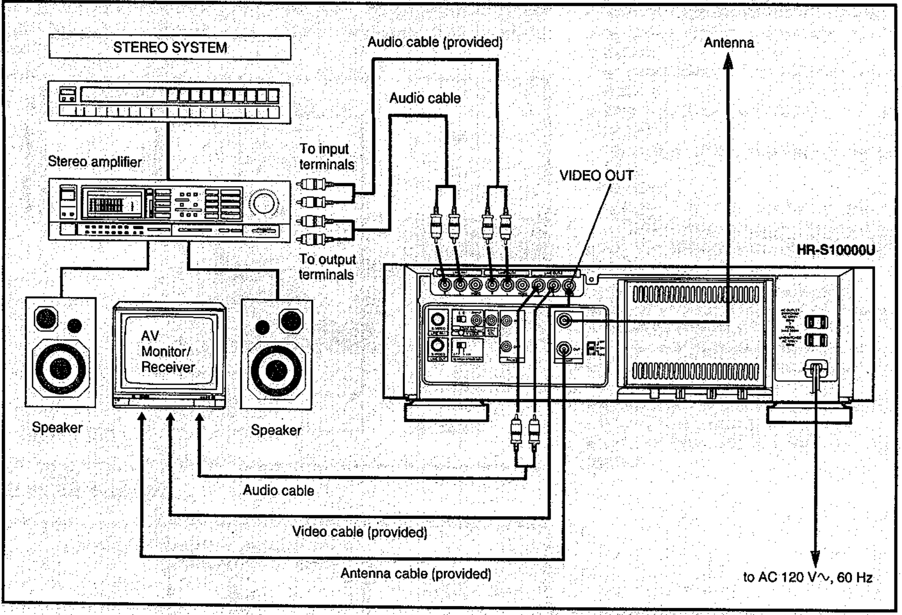


The converter channel of all units is set to 3 prior to shipment from the plant. Reset the channel to 4 in areas where channel 3 is employed for broadcasting. For this purpose, slide the channel select switch on the rear of the unit to CH 4. This is YOUR video channel. To view video cassettes via ANT OUT connection, always set the TV channel selector to either channel 3 or 4.

Notes:
- If the picture is not clear, perform fine tuning on your television.
- If the recorder is connected to a television via its LINE OUT VIDEO (or S-VIDEO) and AUDIO connectors, set the RF output channel select switch to OFF. With this setup, the TV/VIDEO button has no effect on the output signal, and the recorder is always in the TV mode, regardless of whether the VIDEO indicator is on or off.

Connection	ANT OUT channel select switch	Signal from ANT OUT	TV/VIDEO button	TV's mode
ANT OUT + AV	OFF	Direct antenna signal always.	No effect.	TV or VIDEO
ANT OUT only	CH3 or CH4	Direct antenna signal in TV mode. RF channel 3 or 4 signal in VIDEO mode.	Switching is necessary depending on the intended operation.	TV

TO A STEREO SYSTEM



1. Connect the LINE OUT-1 or -2 L and R connectors of the HR-S10000U to the AUX IN or TAPE MONITOR terminals of the amplifier.
2. Connect the LINE IN-1 L and R connectors of the HR-S10000U to the recording output terminals of the amplifier. (Exactly as one hooks up an audio cassette deck.)

Application

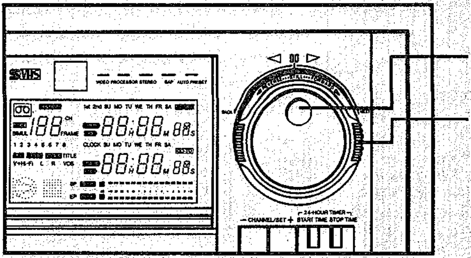
- If the HR-S10000U is connected to both a stereo AV television and a stereo system, you can enjoy prerecorded Hi-Fi VHS tapes in stereo by listening to them either through the stereo system or through the AV television's audio circuitry. (With monaural televisions, use a stereo system to enjoy Hi-Fi stereo video recordings.) In addition, you can record FM simulcast television programs with hi-fi audio accompaniment. See page 7 of VOL. 2.
- You can also record only audio (without recording any video signal) on both hi-fi and longitudinal audio tracks. This means you can record a continuous 8-hour FM program onto a single cassette (T-160 cassette). See page 7 of VOL. 2.
- If you want to timer-control the recording of FM simulcast programs, connect the FM tuner's power cord to the HR-S10000U's SWITCHED AC OUTLET. Set the AC ONLINE switch ㊹ to ON, and both the tuner and the HR-S10000U will be switched on at a time preprogrammed by the HR-S10000U. Timer-controlled recording of FM simulcast programs is not possible with the type of tuners which reset the channel each time the power is switched off.

CAUTION:

- The HR-S10000U has a dynamic range of more than 90 dB with regards to its hi-fi audio capability. It is recommended that you check the maximum level if you are going to listen to the hi-fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set, otherwise the video playback picture will not be normal because of mutual interference.

CLOCK AND DATE SETTING

Plug the HR-S10000U into an AC outlet (AC 120 V). The display shows a blinking "SU 12:00 AM".

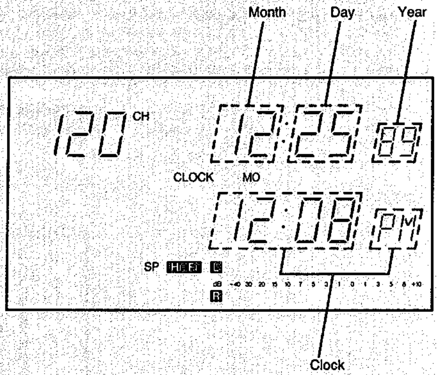


Clock and date setting operations are all done with two controls: the JOG dial and SHUTTLE ring.

JOG dial: Use for setting data.
Turn clockwise for advancing data, and counterclockwise for changing data in reverse.

SHUTTLE ring: Use for moving the cursor.
Turn clockwise for proceeding to the next step, and counterclockwise for returning to the previous step.

1. Press the CLOCK ADJ button ⑲ to engage the Clock/Date Set mode.
   - "CLOCK" and the hour digit will blink.
2. Set the hour with the JOG dial and turn the SHUTTLE ring clockwise.
   - Check the AM/PM indication.
3. Set the minute with the JOG dial and turn the SHUTTLE ring clockwise.
4. Set the month with the JOG dial and turn the SHUTTLE ring clockwise.
5. Set the day of the month with the JOG dial and turn the SHUTTLE ring clockwise.
6. Set the year with the JOG dial.
   - Set the last two figures for the year.
   - The day of the week will be automatically set.
7. Press the CLOCK ADJ button at the exact instant of the time signal, and the clock will be set accurately to the present time.
   - If the operating power is on, the date indication will change to the realtime counter mode indication.



Notes:

- Clock setting must begin within 10 seconds of pressing the CLOCK ADJ button, otherwise it will be necessary to press the CLOCK ADJ button again.
- Clock setting is not possible in the Timer Standby mode. If the TIMER indicator is lit, press the TIMER button to cancel it.
- Timer recording and auto-titling (see pages 10 and 14 of VOL. 2) will not function unless the time, date and year have been correctly set.
- When setting the time, advance the minute digits slightly ahead of the exact time. Press the CLOCK ADJ button precisely when the time signal is heard. This will ensure accurate time setting.

Power failure indicator

The clock display may reset to "SU 12:00 AM" and start to blink. This is not a malfunctioning of the clock, but it indicates that there has been a power failure in excess of 60 minutes. Readjusting the time restores the normal condition of the clock display.

- If the period of power outage is within about 60 minutes, correct time-keeping continues when power is reapplied.
- During this 60-minute period, the built-in memory backup capacitor maintains time-keeping and preset timer memory, though the display blacks out.
- The memory backup capacitor is being recharged when the recorder is not in use. For the fully-discharged capacitor to be recharged sufficiently for 60-minute backup, it takes more than 30 minutes.

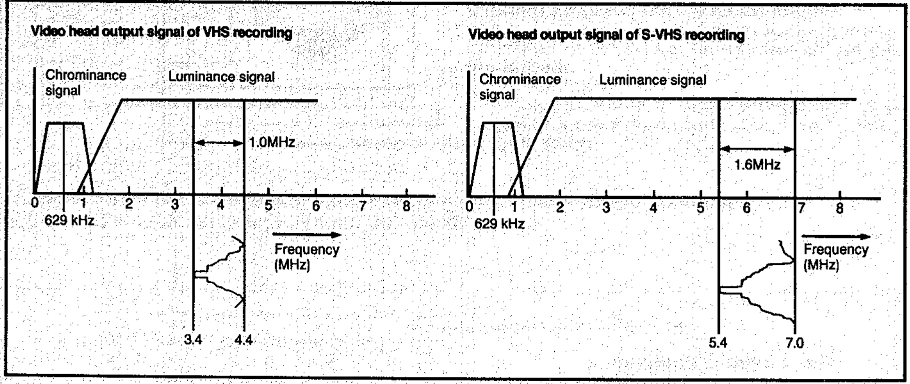
FOR A BETTER UNDERSTANDING OF S-VHS AND VHS

S-VHS vs. VHS

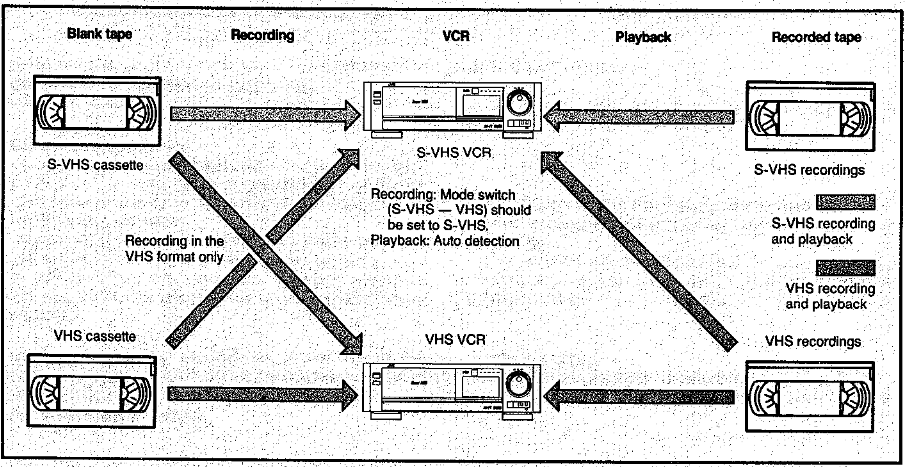
- VHS is the world's most popular video format. If you owned a VCR before the HR-S10000U, most likely it was a VHS machine.
- S-VHS is a new video sub-format based on VHS. It offers superior picture quality with a horizontal resolution of more than 400 lines by shifting the FM carrier frequency of the luminance signal from the conventional 3.4 — 4.4 MHz range to a higher one of 5.4 — 7 MHz.

- The HR-S10000U is equipped for recording and playback in both the S-VHS and VHS formats. Therefore, you can still play back your VHS software programs and previously recorded family recordings.
- You can switch to the world of S-VHS for your new recordings to enjoy breath-taking picture quality. Or to exchange recordings with someone whose VCR is not S-VHS, simply record in the VHS mode, whether with a regular VHS cassette or an S-VHS cassette.

Recording Signal Spectrum

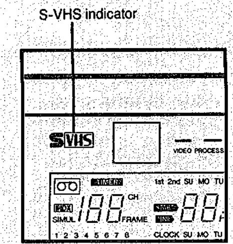


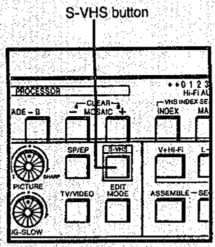
Compatibility between S-VHS and VHS


Blank tape
Recording
VCR
Playback
Recorded tape
S-VHS cassette
S-VHS VCR
S-VHS recordings
Recording: Mode switch (S-VHS — VHS) should be set to S-VHS.
Playback: Auto detection
Recording in the VHS format only
S-VHS recording and playback
VHS recording and playback
VHS cassette
VHS VCR
VHS recordings

S-VHS Recording and Playback

- To record in the S-VHS mode, insert an S-VHS cassette. Then the S-VHS indicator ❹ will light automatically, and you are ready to record in the S-VHS mode.
- To record in the VHS mode with an S-VHS cassette, press the S-VHS button (68) to extinguish the S-VHS indicator.
- During playback, the S-VHS recordings are automatically detected and played back in the S-VHS mode with the S-VHS indicator lit.


S-VHS indicator
S-VHS


S-VHS button
PROCESSOR
CLEAR
MOSAIC
INDEX
SP/EP
S-VHS
V+Hi-Fi
PICTURE
TV/VIDEO
EDIT MODE
ASSEMBLE

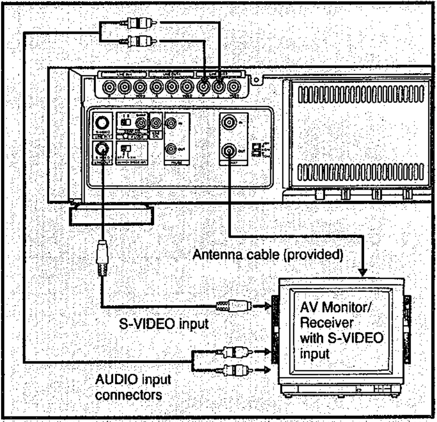
How to take best advantage of S-VHS pictures

For flexibility and convenience, the HR-S10000U offers two sets of LINE IN/OUT terminals for AUDIO and VIDEO (one set on the front panel and one set on the rear panel), and two LINE IN S-VIDEO terminals to be used in combination with the LINE IN-1 or -2 AUDIO connectors, and one S-VIDEO OUT terminal that can be used in combination with either the LINE OUT-1 or -2 AUDIO connectors. The LINE IN/OUT VIDEO connectors accept and deliver the regular composite video signal in which the luminance (Y) and chrominance (C) signals are mixed together, whereas the LINE IN/OUT S-VIDEO connectors accept and deliver the separated Y/C signals. No special connections are necessary to record broadcast programs in the S-VHS mode.

Using a television with S-VIDEO input

If your television is equipped with an S-VIDEO input (separate Y/C signal) terminal, this is an ideal way to enjoy the best possible S-VHS playback picture, because no interference occurs between the luminance and chrominance signals.

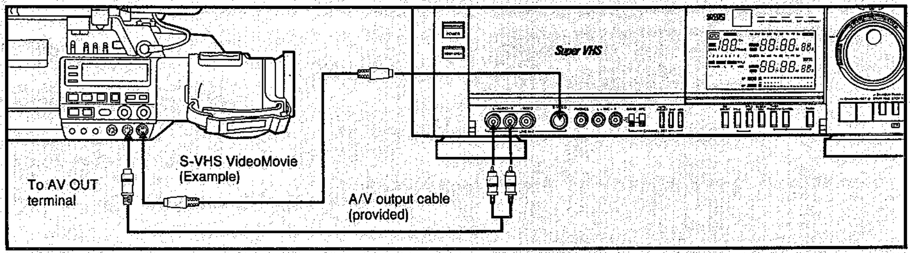
Connect the LINE OUT S-VIDEO terminal of the HR-S10000U to the LINE IN S-VIDEO terminal of your television, and either LINE OUT-1 or -2 AUDIO L/R terminals to the audio input terminals of your television. To view video cassettes with this setup, set the TV to the VIDEO mode. (It is not necessary to set the TV to channel 3 or 4.) With JVC's AV televisions, switching to the VIDEO mode can be performed via the HR-S10000U's remote control (MONITOR TV/VIDEO button).


Antenna cable (provided)
S-VIDEO input
AV Monitor/ Receiver with S-VIDEO input
AUDIO input connectors

Recording from other S-VHS equipment

For recording sources which deliver separated Y/C signals, use one of the LINE IN S-VIDEO connectors and proceed as follows:

1. Insert an S-VHS cassette.
2. Select "S1" or "S2" with the INPUT SELECT button.


Super VHS
To AV OUT terminal
S-VHS VideoMovie (Example)
A/V output cable (provided)

INFORMATION ON THE HR-S10000U'S AUDIO SYSTEM

HI-FI AND NORMAL AUDIO

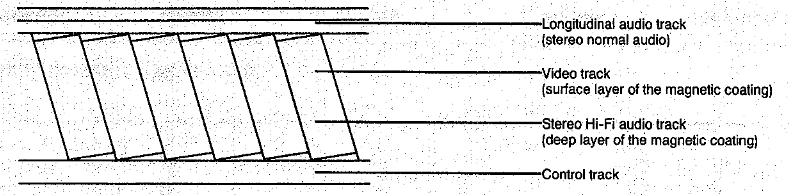
The HR-S10000U has two audio systems; Hi-Fi audio and normal audio. Hi-Fi audio signals (2-channel) are recorded deep into the tape's magnetic coating of the video track section, while normal audio signals (2-channel) are recorded on the usual longitudinal audio track. Normal audio recordings can be made with the Dolby NR system ON or OFF.

CAUTION:

- The Hi-Fi soundtrack recorded with the HR-S10000U cannot be reproduced with video equipment other than Hi-Fi VHS.
- The normal soundtrack recorded with the HR-S10000U is reproduced in mono (L/R mixed) when played back with monaural VHS recorders.
- The normal soundtrack recorded with the HR-S10000U with the DOLBY NR switch ㊷ set to ON cannot be reproduced correctly when played back with VHS recorders not equipped with the Dolby NR system.
- Tapes recorded with a monaural VHS recorder can be played back with the HR-S10000U. (The same monaural sound is output regardless of the setting of the L/R/STEREO button ㊺.)
- Tapes recorded with the DOLBY NR switch set to ON should be played back with the DOLBY NR switch set to ON.

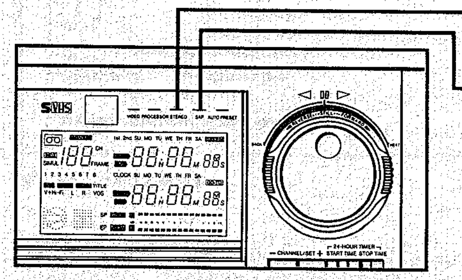
Tape pattern recorded with the HR-S10000U

The Hi-Fi and normal soundtracks are recorded simultaneously. For audio editing, refer to VOL.3.


Longitudinal audio track
(stereo normal audio)
Video track
(surface layer of the magnetic coating)
Stereo Hi-Fi audio track
(deep layer of the magnetic coating)
Control track

MTS (MULTICHANNEL TELEVISION SOUND) COMPATIBILITY

When stereo and SAP programs are being received, the indicators light to inform you of the type of broadcasts.


S-VHS
VIDEO PROCESSOR STEREO SAP AUTO PRESET
CHANNEL/SET
24-HOUR TIMER
START TIME STOP TIME

STEREO indicator

Lights when a stereo program is being received. Stereo programs are recorded in stereo on the Hi-Fi and normal audio tracks.

SAP indicator

Lights when an SAP program is being received. The SAP program is recorded on the normal audio track only. (The same soundtrack is recorded on both left and right channels.)

STEREO+SAP broadcasts

If both the STEREO and SAP indicators light, it means that a stereo+SAP program is being received. In this case, the stereo soundtrack will be recorded on the Hi-Fi audio track and the SAP soundtrack will be recorded on the normal audio track.

Note:

- Off-air MTS programs are received in accordance with the Broadcast Television Systems Committee (BTSC) standard. The method of transmission of stereo programs via cable varies from area to area and may not be compatible with the BTSC standard. Consult your local cable company for compatibility in your area.

HI-FI AUDIO RECORDING LEVEL ADJUSTMENT

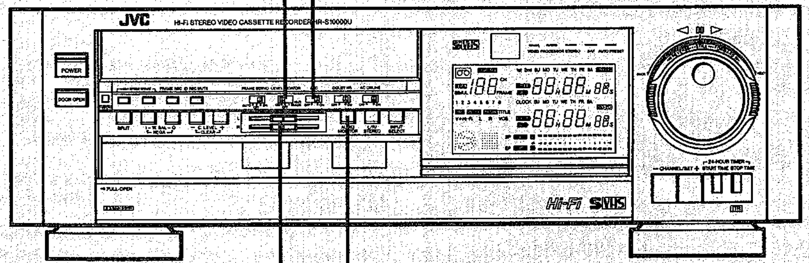
While recording onto the normal audio track is controlled by the built-in Automatic Level Control (ALC) circuit, Hi-Fi audio recording has two control options: manual and automatic.

LEVEL INDICATOR switch⑩

For manual control of the recording level, set this switch to ON so that the audio level indicators on the display panel light.

ALC switch⑪

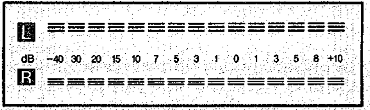
Setting this switch to ON activates the built-in audio limiter circuit for both channels so that the recording level is automatically controlled. For manual adjustment, set this switch to OFF. (The recording level for normal audio is always controlled automatically regardless of the setting of the switch.)


JVC
HI-FI STEREO VIDEO CASSETTE RECORDER HR-S10000U
POWER
DOOR OPEN
SPLIT
AUDIO MONITOR
L/R STEREO
INPUT SELECT
FULL-OPEN
S-VHS
VIDEO PROCESSOR STEREO SAP AUTO PRESET
CLOCK
CHANNEL/SET
24-HOUR TIMER
START TIME STOP TIME
Hi-Fi S-VHS

Hi-Fi AUDIO REC LEVEL controls⑱

Slide these controls, the upper for left channel and the lower for right channel, for manual adjustment of the Hi-Fi audio recording level, referring to the audio level indicators on the display panel.

When indicators up to or near 0dB light for the loudest signal being received, the recording level is optimum. (The level at which only one red indicator lights from time to time may be most appropriate.)


L
dB -40 30 20 15 10 7 5 3 1 0 1 3 5 8 +10
R

AUDIO MONITOR button⑬

Select "Hi-Fi". If this button is in the NORMAL position, the recording level of Hi-Fi audio signals cannot be correctly indicated.

Notes:

- During playback, the audio level indicators show the level of audio signals recorded on the tape and selected with the AUDIO MONITOR and L/R/STEREO buttons.
- If no signal is recorded on the Hi-Fi audio track, the level of normal audio is automatically indicated. These indicators do not light when the LEVEL INDICATOR switch is in the OFF position.
- The normal audio signal level cannot be adjusted.

DUAL-AUDIO PLAYBACK FLEXIBILITY

Two different types of audio tracks (Hi-Fi and normal) allow a variety of playback options depending on the connection and the settings of relevant controls and switches.

Audio output

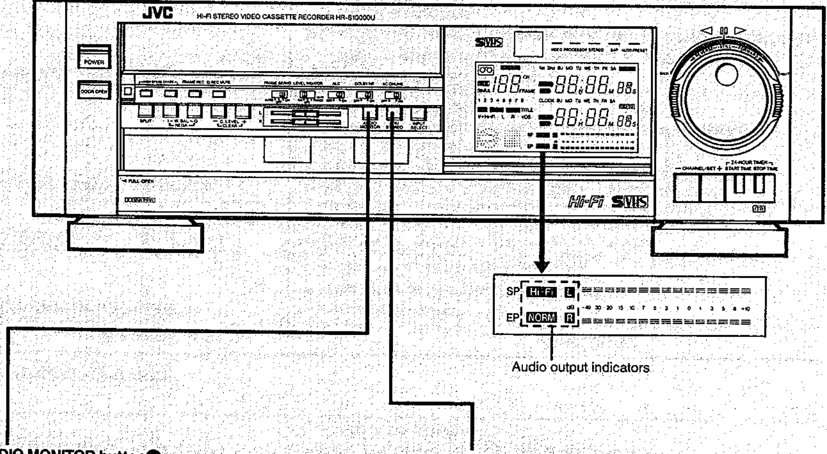
- The ANT OUT connector ⑯ delivers audio and video signals to a TV receiver. When the recorder is not used, the antenna signal is supplied from this connector to the TV receiver to allow regular TV viewing. When a video tape is played back through the ANT OUT connector, the audio is reproduced always as monaural; with Hi-Fi stereo tapes, both channels are mixed or the one selected by the L/R/STEREO button is reproduced. Therefore, for stereo playback, connect a stereo system or stereo television to the LINE OUT-1 or -2 connectors. Refer to page 17.
- The LINE OUT AUDIO connectors ② ③ deliver the audio signals from both Hi-Fi and normal audio tracks.
- The PHONES jack ㉙ delivers the audio signals from both Hi-Fi and normal audio tracks. The headphone output level is adjustable with the PHONES LEVEL control (65).

Hi-Fi tracking

The audio level indicators show the audio signal level during recording and playback when the LEVEL INDICATOR switch is set to ON. The right-channel audio level indicator also functions as a tracking meter during playback. If noise or breaks are sensed in the reproduced sound from the Hi-Fi audio track, attempt correction by using the NORM TRACKING control (82) while referring to the meter. For this purpose, set the LEVEL INDICATOR switch ㊵ to Hi-Fi TRACK and turn the NORM TRACKING control in either direction so that the greatest number of elements of the right-channel indicator light.

Note:

- When playing back a tape with no recording on the Hi-Fi audio track, the level indicator does not light when the LEVEL INDICATOR switch is set to Hi-Fi TRACK.



AUDIO MONITOR button㊸

Selects the Hi-Fi soundtrack, the normal soundtrack, or a mixture of the two for listening. Each time the button is pressed, the selected soundtrack changes in the order of Hi-Fi, normal, mixed, and then back to Hi-Fi and the corresponding audio select indicator will light ("Hi-Fi", "NORM", or both).

- Set to Hi-Fi to listen to the Hi-Fi soundtrack.
- Set to NORM to listen to the normal soundtrack.
- Set to Hi-Fi/NORM to listen to both.

Notes:

- This button functions during recording as well, although it has no effect on the recorded signal.
- When a tape with normal audio only is played back, the NORM mode is automatically selected.

L/R/STEREO button㊺

Selects the channel(s) to be heard. Effective for both the Hi-Fi and normal audio tracks. Each time the button is pressed, the selected channel changes in the order of L, R, stereo, and then back to L, and the corresponding audio channel select indicator will light ("L", "R", or both).

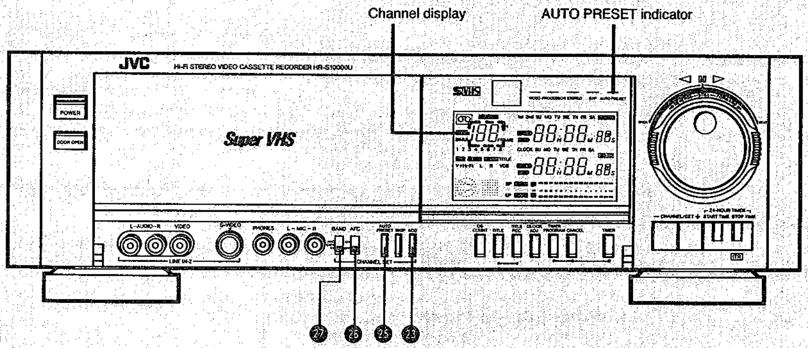
- Set to L to listen to the left channel only.
- Set to R to listen to the right channel only.
- Set to L+R to listen to stereo sound.

OPERATING THE BUILT-IN TUNER

The HR-S10000U incorporates an advanced frequency synthesized tuner which is pretuned to VHF channels 2 through 13, UHF channels 14 through 69 and 113* cable TV channels (excluding 12 VHF broadcasts). There is no need to pretune the tuner; simply store the pretuned channels.

* In Canada: 110 (excluding 12 VHF broadcasts) cable TV channel capability.

A total of 181 channels are receivable. However, to prevent the tuner from scanning all the frequencies to reach your desired station, you can store some channels and skip others. It is possible to restore the skipped channels whenever necessary.



Preparations

- Set the BAND switch ㉗ as required.
  TV : To receive VHF/UHF channels.
  CATV : To receive cable TV channels.
  HRC : To receive HRC cable channels.
- Set the AFC switch ㉖ to OFF. (If no picture appears, reset it to ON.)
- Make sure that the VCR is in the Tuner mode (the display panel shows a channel number with "CH".) If not, press the INPUT SELECT button ㊻ to engage the Tuner mode.

Auto channel presetting

1. Press the AUTO PRESET button ㉕.
2. Scanning will start from the lowest channel.
   - The AUTO PRESET indicator will light.
3. All available channels will be automatically stored while skipping those unavailable in your area.
4. After completion of scanning, the VCR automatically tunes in to the lowest preset channel.

Notes:

- Channels 2—69 will be available in the TV mode.
- Channels 1—125 will be available in the CATV and HRC modes.

Favorite channel programming

Skipping unused channels makes it possible to scan only those channels which are active in your area. For favorite channel programming, first store all available channels as described above and then proceed as follows:

- Select the channel you want to skip with the JOG dial or CHANNEL buttons and press the SKIP button.
- The letters "PO" will appear momentarily in place of the channel number, indicating that the corresponding channel has been skipped.
- The channel is now eliminated from the up/down scanning sequence. Repeat for each channel you want to skip.

Skipped channels can be restored whenever necessary. To restore channels, proceed as follows:

- Press the remote control's numeric keys to select the channel you want to re-enter, and press the VCR's ADD button ㉓ within 2 seconds.
- The channel "entered" will now be available when the channel scanning sequence is used.

Note:

- If the recorder is unplugged from the AC outlet, or there has been a power interruption, favorite channel programming will be maintained. There is no need to re-program channels.

Scanning channels

Channels can be "called up" in ascending or descending order by using the CHANNEL + / — buttons or the JOG dial on the front control panel, or the remote control's CH ∨ / ∧ buttons.

Random-access channel selection

1. To select a channel, simply press the remote control's numeric keys. The channel number selected will appear on the display; the channel will change automatically within 1 to 2 seconds after the last numeric key is pressed.
2. To change channels immediately, press the ENTER button after pressing the numeric keys.

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first . . . .

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	● Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	● Is the TIMER indicator lit on the display panel? — Press the TIMER button to turn off the indicator.
Tape does not run during recording.	● Is the PAUSE/STILL button pressed to ON? — Press the PLAY button.
Tape will not rewind or fast forward.	● Is the tape already fully rewound or fast forwarded? — Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	● Is a cassette loaded? ● Is the safety tab on the cassette removed? — Reseal the slot with cellophane tape.
TV broadcasts cannot be recorded.	● Is the INPUT SELECT button in the Tuner mode? — Press to obtain a channel number and "CH" on the display panel.
Camera recording is not possible.	● Are the camera and the camera adapter correctly connected? ● Is the power switch of the camera adapter set to ON? ● Is the INPUT SELECT button correctly set? — Press to obtain the indication corresponding to the connectors used ("L1", "S1", "L2", or "S2").
Simulcast recording is not possible.	● Is the INPUT SELECT button correctly set? — Press to obtain a channel number with "CH" and "SIMUL". ● Is an FM tuner correctly connected to the LINE IN-1 AUDIO IN connectors? — Check connections.
Timer recording is not possible.	● Have you set the clock correctly and programmed the timer correctly? — Check once again. ● Is the TIMER indicator lit on the display panel? — If not, press the TIMER button to light the indicator.

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	● If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (3 or 4). (See page 16.) ● If you are using AV connection, is the television engaged in the AV mode? — Operate the television's mode.
Noise appears on the search I and still pictures.	● This is normal.
Noise appears during normal playback.	● Adjust the NORM TRACKING control.
Noise appears during slow and still playback.	● Adjust the SLOW TRACKING control.
Playback picture is blurred or interrupted while TV broadcasts are clear.	● Video heads may be dirty. — Head cleaning is necessary. Consult your nearest JVC dealer.

HI-FI AUDIO PROBLEMS

Symptoms	Check points
TV sound cannot be recorded on Hi-Fi audio tracks.	● Is "SIMUL" on the display panel? — Press the INPUT SELECT button to cancel the indication and obtain a channel number with "CH" only.
Breaks are noticeable in Hi-Fi audio reproduction.	● Adjust with the NORM TRACKING control. (See page 23.) ● Have you adjusted the recording level correctly? — Avoid over-level recording. (See page 22.)
Soundtrack on the Hi-Fi audio track cannot be reproduced.	● Is "NORM" on the display panel? — Press the AUDIO MONITOR button to obtain "Hi-Fi".
Audio level indicators do not function.	● Is the LEVEL INDICATOR switch set to OFF? — Set it to ON.

OTHERS

Symptoms	Check points
Whistling or howling is heard from TV during camera recording.	● Move camera's microphone away from TV or reduce TV sound volume.
Clock setting is not possible.	● Is the TIMER indicator lit on the display panel? — Press the TIMER button to turn off the indicator.
Some channels are skipped over when scanning channels.	● Those channels are preset to be skipped over. If you need them, restore them. (See page 24.)
Channel cannot be switched.	● Is recording in progress? — Press the PAUSE/STILL button, select a desired channel and press the PLAY button.
Snowy picture on screen when viewing TV programs while recording another program.	● Is the VIDEO indicator lit? — Press the TV/VIDEO button so that the indicator extinguishes. (With AV connection with the RF output channel select switch set to OFF, the indicator and the TV/VIDEO button have no effect.)
Remote control does not function.	● Batteries are discharged. — Replace with new ones. ● Is the A/B CODE indicator showing the proper code for the recorder being operated? — Press the A/B CODE button to switch the remote control to the correct setting.
Index Search does not function properly.	● Adjacent index codes may be too close to each other. — Erase some index codes and mark new ones, if necessary, with sufficient distance between two index codes.

The recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. After a few minutes, plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

HEAD CLEANING

- Picture playback may become blurred or interrupted while the TV program received is clear. This does not mean that the recorded program has been erased.
- Dirt accumulated on the video heads after long periods of use causes such troubles. In this case, head cleaning requiring highly technical care is necessary.
  * For head cleaning, consult the nearest JVC dealer.

SPECIFICATIONS

GENERAL

Power requirement	: AC 120 V∿, 60 Hz
Power consumption	: 63 W
Temperature	
Operating	: 5°C to 40°C (41°F to 104°F)
Storage	: –20°C to 60°C (–4°F to 140°F)
Operating position	: Horizontal only
Dimensions (WxHxD)	: 475 x 149 x 402 mm (18-3/4" x 5-7/8" x 15-7/8")
Weight	: 12.2 kg (26.9 lbs)
Format	: S-VHS/VHS NTSC standard with Hi-Fi audio
Tape width	: 12.65 mm (1/2 inch)
Tape speed (SP)	: 33.35 mm/sec (1-5/16 ips)
(EP)	: 11.12 mm/sec (7/16 ips)
Maximum recording time (SP)	: 160 min. with T-160 video cassette
(EP)	: 480 min. with T-160 video cassette

VIDEO

Signal system	: NTSC-type color signal and separated Y/C signals conforming to NTSC, 525 lines/60 fields
Recording system	: Rotary, two-head helical scan system with slant double-azimuth combination video heads
Input	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	: 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	: 45 dB (Rohde & Schwarz noise meter) with PICTURE sharpness control at center position
Horizontal resolution	: More than 400 lines (S-VHS)/ 240 lines (VHS) with PICTURE sharpness control at center position

AUDIO

Recording system	: Longitudinal track
No. of channels	: 2 normal audio channels
Input	: –8 dBs, more than 50 k-ohms, unbalanced
Output	: –6 dBs, less than 1 k-ohm, unbalanced (100 k-ohms, load)
Signal-to-noise ratio	: More than 40 dB
Frequency range	: 70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system	: Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	: 2 Hi-Fi audio channels
Frequency response	: 20 Hz to 20,000 Hz
Dynamic range	: More than 90 dB
Wow and flutter	: Less than 0.005% WRMS

TUNER

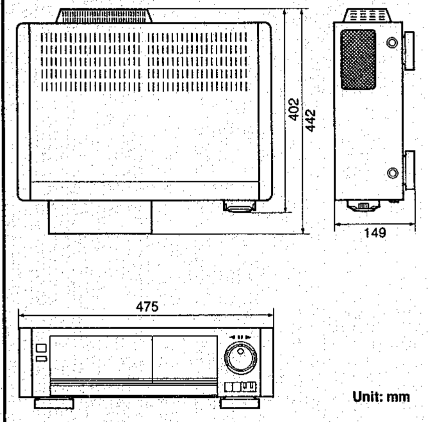
Tuning system	: Frequency synthesized tuner
Channel coverage	
(VHF)	: Channels 2 — 13
(UHF)	: Channels 14 — 69
(CATV)	: 113 channels
RF output	: Channel 3, 4 or OFF (switchable; preset to channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	: Quartz-crystal
Program capacity	: 14-day programmable timer/8 programs

ACCESSORIES

Provided accessories	: Antenna cable (F-type), Matching transformer, Infrared remote control unit, "AA"-size battery x 2, Audio cable, Video cable, Pause control cable, S-VIDEO cable (4-pin),



Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

CABLE (CATV) CHANNEL REFERENCE CHART

Cable (CATV) Channel Reference Chart

The Cable TV (CATV) Channel Reference Chart is supplied for your convenience. Fill in the name or number of the actual station being provided by your CATV company on each CATV channel. (Your CATV company should give you this information.) If the TV tuner is NOT connected to a CATV antenna system, it is important that the BAND selection is set to TV to properly receive VHF channels 2 through 13 and UHF channels 14 through 69.

Note:
CATV channels A-1, A-2 & A-8 are not available in Canada.

CATV channel	2	3	4	4a (A-8)	5 (A-7)	6 (A-6)	A-5	A-4	A-3	A-2	A-1	A	B	C	D	E	F	G
Channel number indication	2	3	4	1	5	6	95	96	97	98	99	14	15	16	17	18	19	20
Actual TV station	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CATV channel	H	I	7	8	9	10	11	12	13	J	K	L	M	N	O	P	Q	R
Channel number indication	21	22	7	8	9	10	11	12	13	23	24	25	26	27	28	29	30	31
Actual TV station	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CATV channel	S	T	U	V	W	W+1 (AA)	W+2 (BB)	W+3 (CC)	W+4 (DD)	W+5 (EE)	W+6 (FF)	W+7 (GG)	W+8 (HH)	W+9 (II)	W+10 (JJ)	W+11 (KK)	W+12 (LL)	W+13 (MM)
Channel number indication	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
Actual TV station	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CATV channel	W+14 (NN)	W+15 (OO)	W+16 (PP)	W+17 (QQ)	W+18 (RR)	W+19 (SS)	W+20 (TT)	W+21 (UU)	W+22 (VV)	W+23 (WW)	W+24 (XX)	W+25 (YY)	W+26 (ZZ)	W+27 (AAA)	W+28 (BBB)	W+29	W+30	W+31
Channel number indication	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67
Actual TV station	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CATV channel	W+32	W+33	W+34	W+35	W+36	W+37	W+38	W+39	W+40	W+41	W+42	W+43	W+44	W+45	W+46	W+47	W+48	W+49
Channel number indication	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
Actual TV station	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CATV channel	W+50	W+51	W+52	W+53	W+54	W+55	W+56	W+57	W+58	W+59	W+60	W+61	W+62	W+63	W+64	W+65	W+66	W+67
Channel number indication	86	87	88	89	90	91	92	93	94	100	101	102	103	104	105	106	107	108
Actual TV station	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CATV channel	W+68	W+69	W+70	W+71	W+72	W+73	W+74	W+75	W+76	W+77	W+78	W+79	W+80	W+81	W+82	W+83	W+84	
Channel number indication	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	
Actual TV station	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

JVC

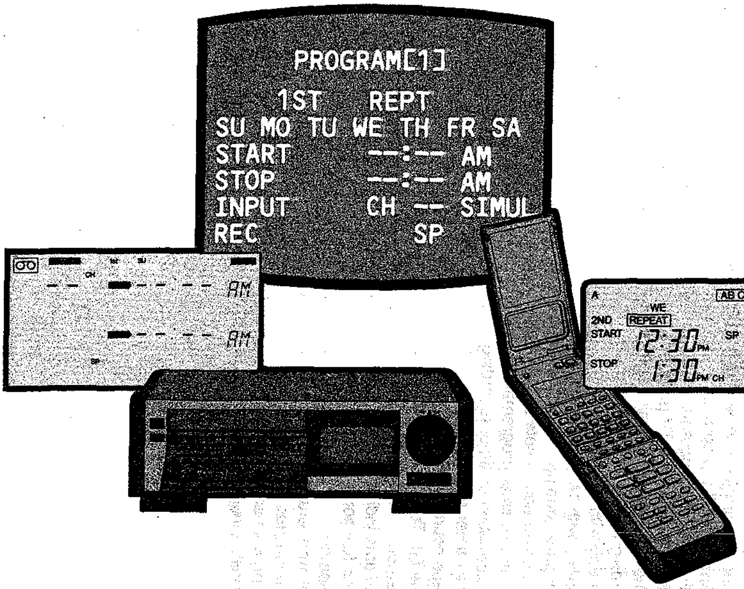
INSTRUCTIONS

HR-S10000U

SUPER VHS EDITING RECORDER

VOL.2

BASIC OPERATIONS


PROGRAM[1]
1ST REPT
SU MO TU WE TH FR SA
START --:-- AM
STOP --:-- AM
INPUT CH -- SIMUL
REC SP
AM
AM
WE
2ND REPEAT
AB CODE
START 12:30 PM SP
STOP 1:30 PM CH 6

S VHS

Hi-Fi
STEREO

HQ

For Customer Use:
Enter below the Serial No. which is located on the rear of the cabinet. Retain this information for future reference.

Model No. **HR-S10000U**

Serial No.

PU30425-1066

CONTENTS

Cautions, warning, safety guide, and precautions are described on pages 1, 2, 3 and 4 of VOL.1.

VOL. 2: BASIC OPERATIONS

Loading and unloading a cassette 2
Playing back a video cassette 3
    Skip search function 3
    TV monitor function 3

Special-effects playback

    High-speed reverse search 4
    High-speed forward search 4
    Still playback 4
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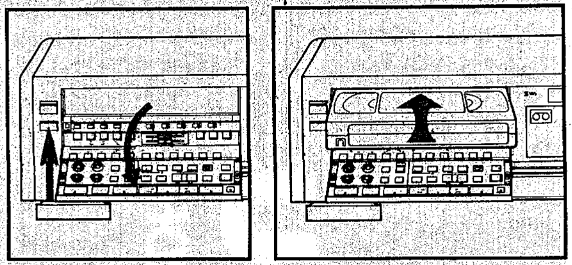
LOADING AND UNLOADING A CASSETTE

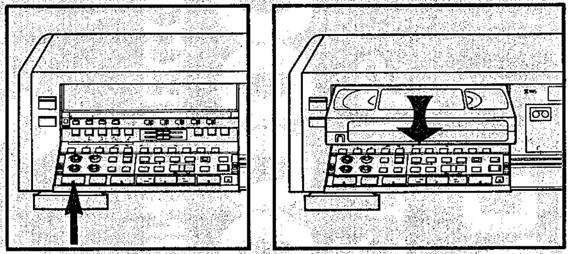
LOADING

1. Press the DOOR OPEN button.
2. Insert a cassette as illustrated with its labelled side facing you.
   - With a cassette inserted, the OO mark to indicate "cassette inserted" appears on the display panel. If you insert an S-VHS cassette, the S-VHS indicator will also light.



UNLOADING

1. Press the EJECT button. The cassette will be ejected.
2. Remove the cassette from the loading slot.



Motorized loading system

- The cassette can be loaded even when the power has not been turned on. Inserting a cassette into the loading slot turns the power on automatically.
- The cassette can be unloaded even when the power has been turned off. If a cassette is inside, pressing the EJECT button turns the power on automatically and, after ejection of the cassette, shuts it off automatically.
- Inserting a cassette, with its safety tab removed, turns the recorder on and playback of the cassette begins automatically.

Notes:

- Be sure to insert the cassette firmly into the slot; otherwise it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.

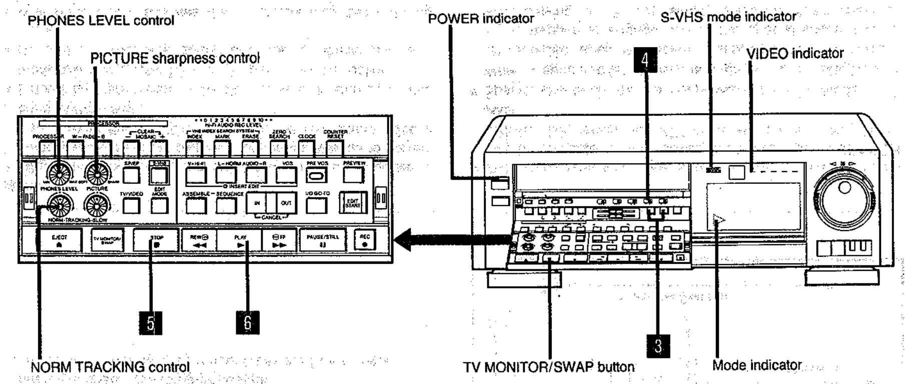
Caution

- If unloading of a cassette is not possible, check to see whether the TIMER indicator is lit. If so, press the TIMER button so the TIMER indicator extinguishes.
- Do not attempt to pull out the cassette once automatic loading has started.

WARNING

- Do not insert fingers or any foreign object beyond the door flap of the cassette loading slot, as this could lead to injury or damage to the mechanism. Show special caution with children.

PLAYING BACK A VIDEO CASSETTE



1. Switch on the TV receiver.
   - Set the TV receiver to your video channel (3 or 4), or to the AV mode depending on the connection.
2. Load a pre-recorded cassette.
   - Power will be switched on automatically. When the cassette loaded has no safety tab, playback starts automatically.
3. Set the AUDIO MONITOR and L/R/STEREO buttons as required. See page 23 of VOL.1.
4. Set the DOLBY NR switch as required. See page 21 of VOL.1.
5. Press the PLAY button.
6. Press the STOP button at the end of the program.

SKIP SEARCH FUNCTION

During playback, press the remote control's SKIP SEARCH button from 1 to 4 times to zip through 30-sec. to 2-min. sections of tape. Press the PLAY button to cancel the Skip Search mode.

TV MONITOR FUNCTION

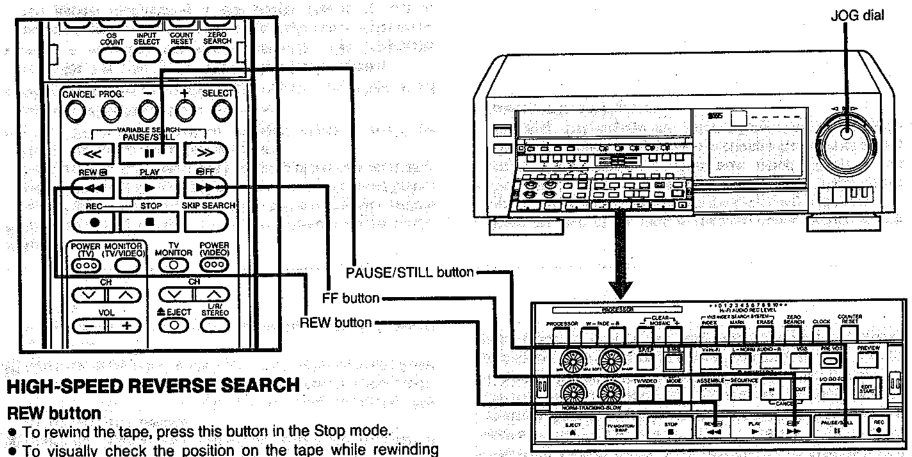
When viewing a video tape, you can check the TV program being received by the VCR's built-in tuner without stopping the tape.

- Press the VCR's TV MONITOR/SWAP button or the remote control's TV MONITOR button to check TV programs during tape playback. The tuned-in TV program can be viewed while the button is being pressed.

Notes:

- The SP/EP button may be in either position. The SP, LP or EP mode recording is automatically detected and played back at the correct speed.
- Irrespective of the S-VHS mode button setting, the S-VHS or VHS recording mode is automatically detected and played back in the correct mode. The S-VHS mode indicator lights for playback of S-VHS recordings.
- When the PLAY button is pressed to start playback, the VIDEO mode is automatically entered and the VIDEO indicator lights.
- The tape-end auto-rewind mechanism functions in the Play, Fast Forward and Forward Search modes.
- Noise bars may appear on the screen if you play back a tape which was recorded using another recorder. In such cases, use the NORM TRACKING control. Turn it slowly in either direction until the noise bars move out of the picture frame. After playing a particular tape, return the control knob to the center position.
- If noise or breaks are sensed in the reproduced sound from the Hi-Fi audio track, attempt correction by using the NORM TRACKING control while referring to the meter. For this purpose, set the LEVEL INDICATOR switch to Hi-Fi TRACK and turn the NORM TRACKING control so that the greatest number of elements of the right-channel indicator light.
- Images on the screen can be adjusted to a preferred softer or sharper definition by turning the PICTURE sharpness control.
- When listening through headphones, if the volume is too low or too high, adjust the PHONES LEVEL control for comfortable listening.

SPECIAL-EFFECTS PLAYBACK



HIGH-SPEED REVERSE SEARCH

REW button

- To rewind the tape, press this button in the Stop mode.
- To visually check the position on the tape while rewinding it, press the REW button and hold it pressed to obtain the Open Reverse-Search mode with a high-speed search picture appearing on the screen. Release the REW button to resume normal rewinding without the picture on the screen.
- To shuttle search the tape in the reverse direction, press this button in the Play mode.
- The shuttling speed is about 7 or 11 times normal (depending on the setting of the SEARCH SPEED (SP) switch on the rear panel) in the SP mode and 21 times normal in the EP mode.
- Press the PLAY button to return to normal playback.
- For briefer scanning, keep the REW button pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled. In this case, the shuttling speed in the EP mode is also about 7 times normal.

HIGH-SPEED FORWARD SEARCH

FF button

- To fast forward the tape, press this button in the Stop mode.
- To visually check the position on the tape while fast-forwarding it, press the FF button and hold it pressed to obtain the Open Forward-Search mode with a high-speed search picture appearing on the screen. Release the FF button to resume normal fast-forwarding without the picture on the screen.
- To shuttle search the tape in the forward direction, press this button in the Play mode.
- The shuttling speed is about 7 or 11 times normal (depending on the setting of the SEARCH SPEED (SP) switch on the rear panel) in the SP mode and 21 times normal in the EP mode.
- Press the PLAY button to return to normal playback.
- For briefer scanning, keep the FF button pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled. In this case, the shuttling speed in the EP mode is also about 7 times normal.

STILL PLAYBACK

PAUSE/STILL button

- To view a still picture, press this button in the Play mode.
- To advance the picture frame by frame, press this button again.
- Also, by turning the JOG dial clockwise you can advance the picture frame by frame, and by turning it counterclockwise, make the picture go in the reverse direction frame by frame. (See "Frame-by-Frame Playback" below.)
- To return to normal playback, press the PLAY button.
- When the Still mode continues for longer than about 5 minutes, the Stop mode will be entered automatically.

FRAME-BY-FRAME PLAYBACK

JOG dial

- While in the Still mode, the tape can be advanced or moved back a frame at a time for precise location of a specific point in a scene. (This function is especially convenient for locating edit-in and edit-out points during editing.)
- Turn the JOG dial clockwise while in the Still mode to advance the picture; counterclockwise to move the picture back.
- Each 60-degree turn of the JOG dial in either direction, moves the picture forward or back by one frame.
- If the JOG dial is rotated at a speed of about one revolution per second, the picture moves at about 1/7 normal speed. If rotated at about two revolutions per second, the picture moves at about normal speed playback.

Note:

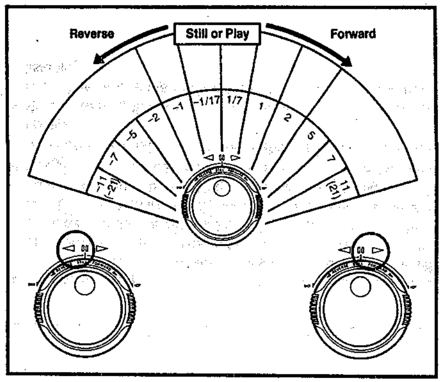
- Carefully read "Notes" for special-effects playback on page 5.

VARIABLE-SPEED SEARCH

SHUTTLE ring

By turning the SHUTTLE ring clockwise or counterclockwise, variable-speed search is possible in either the forward or reverse direction from either the Play or Still mode.

- To search in the forward direction, turn the SHUTTLE ring gradually clockwise. The farther the dial is rotated, the faster the search speed becomes — from 1/7 to 11 times normal in the SP mode and from 1/7 to 21 times normal in the EP mode.
- To search in the reverse direction, turn the SHUTTLE ring gradually counterclockwise. The farther the dial is rotated, the faster the search speed becomes — from −1/7 to −11 times normal in the SP mode and from −1/7 to −21 times normal in the EP mode.
- Releasing the SHUTTLE ring produces a still picture on the screen.
- The direction indicators (◁ / ▷) show in which direction the tape is moving.



VARIABLE SEARCH buttons on the remote control

In addition to having the same variable-search speeds as the SHUTTLE ring, slower searching speeds are possible in either direction from either the Play or Still mode by pressing the VARIABLE SEARCH buttons on the remote control.

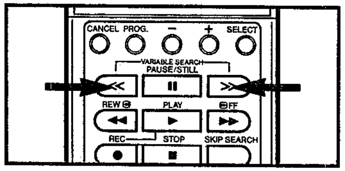
To search in the forward direction:

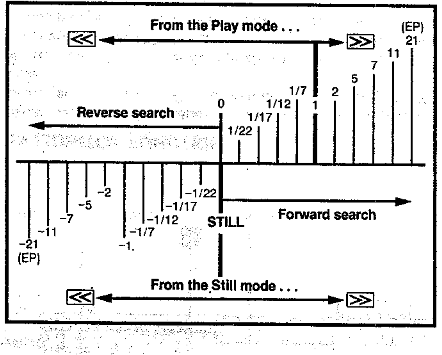
- Press the ⧐ button in the Play mode to start fast-motion searching from 2 times normal speed. To increase speed, press ⧐ repeatedly.
- Press the ⧐ button in the Still mode to start slow-motion searching from 1/22 normal speed. To increase speed, press ⧐ repeatedly. To decrease speed, press ⧏ repeatedly. (Pressing the ⧏ button in the Play mode, starts slow-motion searching at 1/7 normal speed.)

To search in the reverse direction:

- Press the ⧏ button in the Still mode to start searching in the reverse direction at the same speed as normal speed playback. To increase speed, press ⧏ repeatedly. To decrease speed, press ⧐ repeatedly.

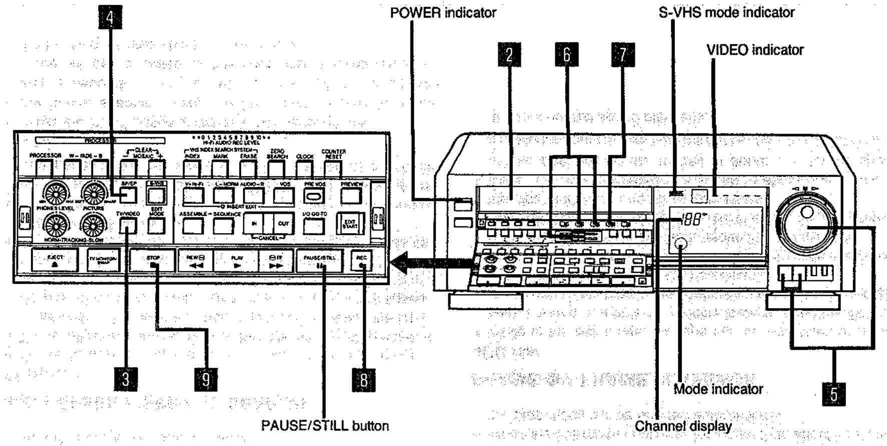
To return to the normal Play mode, press the PLAY button.





Notes:

- With some televisions, the still picture may be unstable. If vertical vibration of the picture is observed, attempt to correct it by turning the V.LOCK control on the rear panel. (Use a small screwdriver.)
- If noise bars are visible in the Still, Slow, or Frame-by Frame mode, use the SLOW TRACKING control for correction.
- No audio is available during any special-effects playback mode.
- With some video cassettes, the TV picture may distort during slow-motion playback. This is not due to any defect of the unit.
- With some televisions, the search picture in the SP mode may be unstable. In such cases, set the rear panel SEARCH SPEED (SP) switch to "X7". Normally set it to the "X11" position.
- Special-effects playback is not possible in the LP mode. When a special-effects mode is engaged during playback of LP recorded tapes, the picture disappears from the screen. If you happen to engage one of the special-effects modes while playing an LP tape, simply press the PLAY button to restore the picture.



1. Switch on the TV receiver.
   - Set the TV receiver to your video channel (3 or 4), or to the AV mode (depending on the connection).
2. Load a cassette (with safety tab in place). Power will be switched on automatically.
   - To record in the VHS mode with an S-VHS cassette, press the S-VHS button to turn off the S-VHS indicator.
3. Press the TV/VIDEO button so that the VIDEO indicator lights.
   - Skip this step when the TV is set to the AV mode.
4. Select the recording speed (SP or EP).
   SP: 2 hours 40 minutes with a T-160 cassette.
   EP: 8 hours with a T-160 cassette.
   (Check the SP/EP indicator on the display panel).
5. Select the channel you wish to record with the JOG dial or CHANNEL/SET buttons.
   - If "L1", "S1", "L2", or "S2" is in the channel display, first press the INPUT SELECT button to engage the Tuner mode.
6. Make necessary Hi-Fi audio recording level adjustment. Refer to page 22 of VOL. 1.
   - For automatic level adjustment, simply set the ALC switch to ON.
7. Set the DOLBY NR switch as required. See page 21 of VOL.1.
8. Press the REC button to start recording. (When using the remote control unit, press the REC and PLAY buttons simultaneously.
   - If there is part of the program you do not want to record, press the PAUSE/STILL button. To release the Record-Pause mode, press the PLAY button.
9. Press the STOP button at the end of the program.

RETAKE FUNCTION

While in the Record-Pause mode, pressing the FF or REW button initiates normal-speed search in the corresponding direction. Releasing the button engages the Record-Pause mode. If you have recorded unnecessary material because of having engaged the Record-Pause mode too late, use this function to return to the position where you want the next recording to start. Then, simply press the PLAY button when you want to start recording.

Notes:

- When recording is restarted from the Record-Pause mode, assemble recording is performed so that the playback picture will not distort at the edit point. A few frames recorded before the pause may be erased due to overlap of the new recording. This is not due to any defect of the unit.
- If the REC button cannot be engaged, check to see if the cassette safety tab has been removed.
- When the Record-Pause mode continues for longer than about 5 minutes, the Stop mode will be entered automatically.
- When a recording containing assemble edits (segments recorded using the Pause function) is played back, color noise may appear momentarily at edit points. This is not due to any defect of the unit.
- When the end of the tape is reached during recording, the tape is automatically rewound to the beginning and stops.
- The built-in tuner's automatic channel lock mechanism prevents the selected channel from being altered during recording. Therefore, if you wish to change the channel during recording, first engage the Record-Pause mode and then select a different channel.

OTHER RECORDING POSSIBILITIES

RECORDING ONE PROGRAM WHILE WATCHING ANOTHER

A program not being viewed can be recorded while you enjoy viewing another program.
This permits the recorded program to be played back later at your convenience.

The key points to remember are:

- Select the channel you wish to record with the recorder's channel selector.
- Select the channel you wish to view with the TV receiver's channel selector.
- With RF-only connection, the TV/VIDEO button should be in the TV mode (VIDEO indicator off). If the indicator is lit, press the TV/VIDEO button to turn it off.

RECORDING STEREO TV PROGRAMS

The HR-S10000U is capable of automatically receiving stereo TV programs in stereo. When a stereo program is being received, the STEREO indicator lights and recording is made in stereo on both the Hi-Fi and normal audio tracks. To listen to the stereo soundtrack during recording, press the L/R/STEREO button so that both L and R indicators light on the screen and display panel.

RECORDING SAP (SECOND AUDIO PROGRAM) TV PROGRAMS

When an SAP TV program is being received, the SAP indicator lights. SAP programs are automatically recorded on both channels of the normal audio track.

- To listen to the SAP soundtrack being recorded, press the AUDIO MONITOR select button so that the NORM indicator lights on the screen and display panel.

Note:
SAP programs can be recorded only on the normal audio track. It is not possible to record any SAP program on the Hi-Fi audio track, regardless of any setting.

RECORDING FM SIMULCAST TV PROGRAMS

FM simulcast TV programs can be recorded using an FM stereo tuner. Connect necessary components. (Connect the FM tuner to the LINE IN-1 AUDIO connectors.) Select the TV channel broadcasting the simulcast program with the recorder's channel select buttons and tune the FM stereo tuner to the station broadcasting the soundtrack for this TV program.

- Press the INPUT SELECT button so that "SIMUL" appears on the screen and on the display panel. With this setting, the audio signals from the built-in tuner will be recorded on the normal audio track and the audio signals from the FM stereo tuner will be recorded on the Hi-Fi audio track.

Notes:

- After finishing recording, be sure to return to the Tuner mode by simply pressing the INPUT SELECT button so that "SIMUL" disappears from the display panel and just the channel with "CH" remains.
- While recording simulcast programs, the Hi-Fi sound might be distorted momentarily at switching points between different programs (at the insertion of commercials, for example). This is not due to any defect of the unit.
- Using the "simulcast" recording function, you can record independent audio and video programs. While recording a TV program, record any audio source independently, by connecting an audio component to the LINE IN-1 AUDIO connectors.

USING THE HR-S10000U AS AN AUDIO DECK

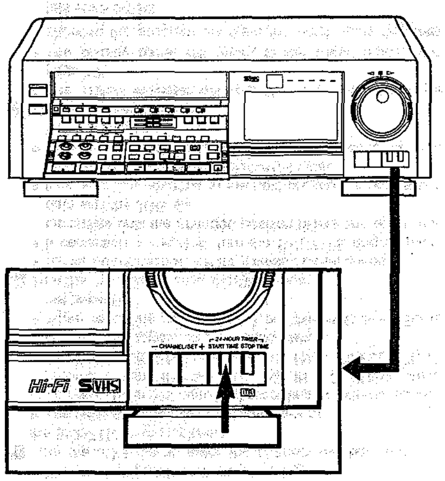
Audio-only recording

You can record audio only (without recording any video signal) on the normal and Hi-Fi audio tracks. This means you can record a continuous 8-hour FM program onto a single cassette (T-160).

- Connect an audio source (such as an FM tuner) to the LINE IN-1 or -2 AUDIO connectors.
- DO NOT connect any equipment to the LINE IN-1 or -2 VIDEO connector.
- Press the INPUT SELECT button so that the corresponding indicator appears in the channel position on the display panel.

TIMER RECORDING WITH 24-HOUR TIMER

The 24-Hour Timer Recording feature allows unattended automatic starting and stopping of the recording of a single program which starts within a 24-hour period.



Preparation

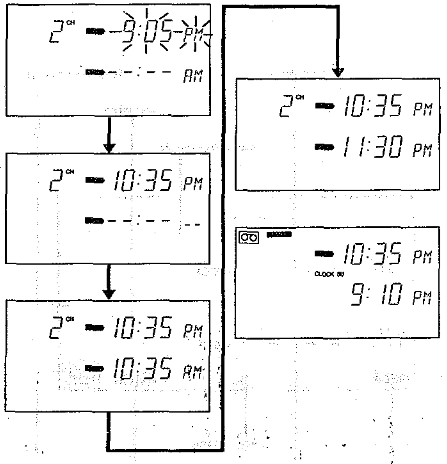
1. Make sure the clock is set to the correct time.
2. Insert a cassette with its safety tab in place. The recorder turns on automatically.
3. Make sure of the settings of the following buttons and switches while referring to "BASIC OPERATION FOR RECORDING TV PROGRAMS" on page 6:

   INPUT SELECT : Tuner mode
   TV/CATV/HRC : As required
   S-VHS : As required
   SP/EP : As required
   ALC : As required
   DOLBY NR : As required

4. Select the channel you wish to record with the JOG dial or CHANNEL/SET buttons.

Setting the timer

1. Press the 24-HOUR START TIME button to engage the 24-Hour Instant Timer Set mode. The current time will blink for "START" time on the display panel.
2. Press the 24-HOUR START TIME button again to advance the START time.
   - Each pressing delays the START time in 30-minute increments.
   - Holding the button pressed delays the START time in one-hour increments.
3. Turn the JOG dial clockwise or counterclockwise to set the time more precisely to the exact minute.
4. Press the 24-HOUR STOP TIME button or turn the SHUTTLE ring clockwise to move to the STOP time setting.
   - The same time as set for the START time will start blinking for "STOP".
5. Press the 24-HOUR STOP TIME button again to advance the STOP time by 30 minutes.
   - Each pressing delays the STOP time in 30-minute increments.
   - Holding the button pressed delays the STOP time in one-hour increments.
6. Turn the JOG dial clockwise or counterclockwise to set the time more precisely to the exact minute.
7. After confirming the START and STOP times, press the TIMER button.
   - "TIMER" lights on the display panel and the 24-Hour Timer Standby mode is automatically engaged with the START time displayed.



Notes:

- At each step of the timer setting procedure, if no data is entered within 60 seconds, the 24-Hour Timer Set mode is cancelled, and the current time is displayed.
- To cancel the 24-Hour Timer Set mode, press the CANCEL button once or twice depending on the setting status.
- 24-Hour Timer Recording has priority over other timer program settings; therefore, no other programs, set for timer recording, will be recorded until 24-Hour Timer Recording has been executed.

TIMER RECORDING WITH OFF-TIMER

The recorder can be set to stop automatically after a certain period of time. This is a quick-setting convenience for automatically shutting off the recorder after you have gone to bed or have left home for the evening, for example.

Preparation

1. Make sure the clock is set to the correct time.
2. Insert a cassette with its safety tab in place. The recorder turns on automatically.
3. Make sure of the settings of the following buttons and switches while referring to "BASIC OPERATION FOR RECORDING TV PROGRAMS" on page 6:

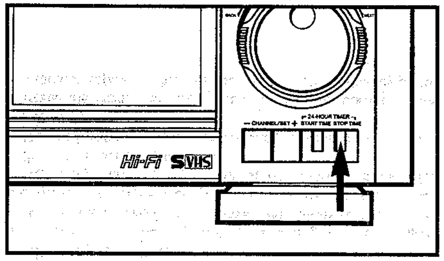
INPUT SELECT	: Tuner mode
TV/CATV/HRC	: As required
S-VHS	: As required
SP/EP	: As required
ALC	: As required
DOLBY NR	: As required

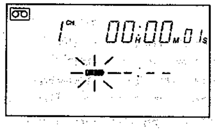
4. Select the channel you wish to record with the JOG dial or CHANNEL/SET buttons.

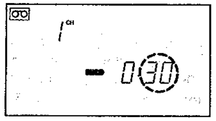
Instant Timer Recording

1. Press the ITR button (24-HOUR TIMER STOP TIME button) while in the Stop mode.
   - The following indication will appear on the display, to show that the recorder is ready for the ITR STOP time to be entered.
2. Press the ITR button again. Recording of the selected program starts immediately with a recording time of 30 minutes displayed on the display panel.
   - Each pressing of the ITR button increases the recording time by 30 minutes to a maximum of 4 hours.
3. For a more precise time setting, use the JOG/SHUTTLE dials to set to the exact time required.
   - After "0:30" appears on the display, turn the SHUTTLE ring clockwise and the hour position will start blinking.
   - Enter the required hour by turning the JOG dial. Follow the same procedure to set the required minutes.
   - Time setting by using the JOG/SHUTTLE dials is possible up to a maximum of 8 hours and 59 minutes.

Notes:
- Instant off-timer setting can also be performed after you have already started recording in the regular way. Press the ITR button while in the Record mode and set the STOP time as described above.
- While recording is in progress, the displayed time counts down; when 0:00 is reached, the Record mode is released after 10 seconds and the power is switched off.
- If you want to stop recording after having started recording in the ITR mode, press the STOP button.







TIMER RECORDING WITH 14-DAY/8-EVENT TIMER

The built-in 14-day/8-event programmable timer permits recording of preset channels on preset days at preset times for preset lengths while you are away.

Three ways to perform timer programming

A. Local programming: Program the timer using the recorder's controls while referring to the display panel (or the on-screen display).

B. Direct on-screen remote programming: Program the timer using the remote control's keys while referring to the on-screen display (or the display panel).

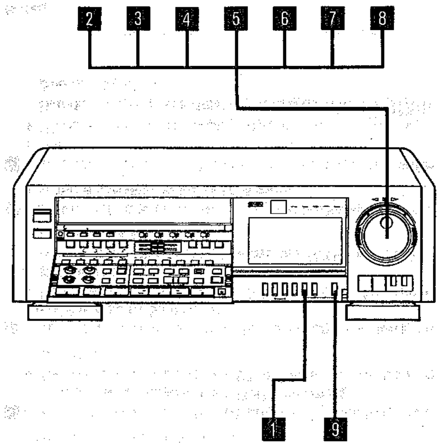
C. LCD remote timer programming: Program the remote control's memory using the remote control's keys while referring to its own LCD and then transfer the data to the recorder at your convenience.

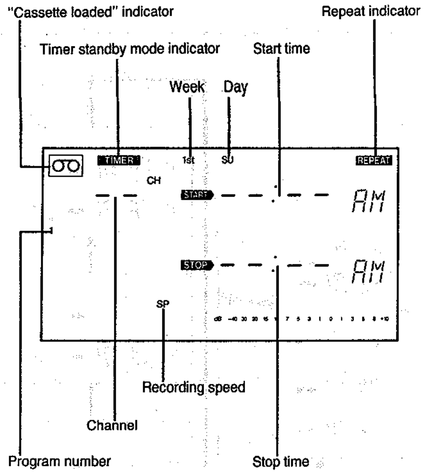
First of all, load a cassette (with safety tab in place); power will be switched on automatically.

— Make sure of the settings of the following buttons and switches while referring to "BASIC OPERATION FOR RECORDING TV PROGRAMS" on page 6:

INPUT SELECT	: Tuner mode
TV/CATV/HRC	: As required
S-VHS	: As required
SP/EP	: As required
ALC	: As required
DOLBY NR	: As required

A. LOCAL PROGRAMMING





1. Press the TIMER PROGRAM button. The display panel will change to the Timer Set mode with "1ST SU" blinking and program number "1" displayed. You are ready to enter the data into No. 1 program memory. To change the program number, press the TIMER PROGRAM button the required number of times.
   - If the TV is on, you can also use the on-screen display. For on-screen display indications, refer to "B. DIRECT ON-SCREEN REMOTE PROGRAMMING".
2. Turn the JOG dial to enter the day and week according to the following sequence.
   - Turning the JOG dial clockwise advances the setting; counterclockwise, reverses the setting.

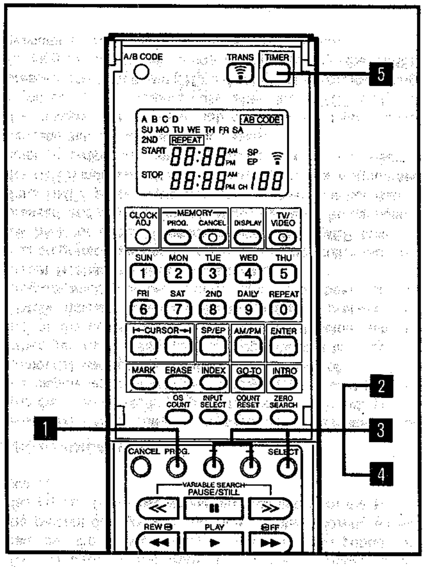
→ 1ST SU~SA → 2ND SU~SA → 1ST SU~SA REPEAT →
→ 2ND SU~SA REPEAT → SU MO TU WE TH FR SA REPEAT →
→ MO TU WE TH FR SA REPEAT →
→ MO TU WE TH FR REPEAT →

Then, turn the SHUTTLE ring clockwise. The START time hour will start blinking.

3. Turn the JOG dial to enter the START time hour, and turn the SHUTTLE ring clockwise.
   - Be sure to select the correct AM/PM setting.
4. Turn the JOG dial to enter the START time minute, and turn the SHUTTLE ring clockwise.
   - The STOP time hour will start blinking.
5. Turn the JOG dial to enter the STOP time hour, and turn the SHUTTLE ring clockwise.
   - Be sure to select the correct AM/PM setting.
6. Turn the JOG dial to enter the STOP time minute, and turn the SHUTTLE ring clockwise.
   - The channel position will start blinking.
7. Turn the JOG dial to enter the channel number, and turn the SHUTTLE ring clockwise.
   - The REC speed position will start blinking.
   - To program for FM simulcast recording or external source recording from LINE IN-1, or LINE IN-1 S-VIDEO, press the INPUT SELECT button at this time. "SIMUL", "L-1" or "S-1" will appear on the display panel.
   - Timer recording via LINE IN-2 or LINE IN-2 S-VIDEO is not possible.
8. Turn the JOG dial to enter the REC speed.
   - SP for normal speed. EP for 3 times normal speed.
   - If correction is required, turn the SHUTTLE ring counterclockwise until the intended position blinks and enter new data with the JOG dial.
   - Now you can advance to the next program, if necessary, by pressing the TIMER PROGRAM button.
   - After all necessary programs have been preset, proceed to the next step.
9. Press the TIMER button.
   - The TIMER indicator will light. (For error indications see page 13.)
   - The display panel will return to the Clock mode, also showing the program numbers for which recording data has been preset.

B. DIRECT ON-SCREEN REMOTE PROGRAMMING

- Turn on the TV receiver and set it to the video channel or AV mode.
- Turn on the operating power of the recorder.


A/B CODE
TRANS
TIMER
A B C D
AB CODE
SU MO TU WE TH FR SA
2ND REPEAT
START
STOP
CLOCK ADJ
MEMORY
PROG.
CANCEL
DISPLAY
TV/VIDEO
SUN MON TUE WED THU
1 2 3 4 5
FRI SAT 2ND DAILY REPEAT
6 7 8 9 0
CURSOR
SP/EP
AM/PM
ENTER
MARK ERASE INDEX GO-TO INTRO
OS COUNT
INPUT SELECT
COUNT RESET
ZERO SEARCH
CANCEL
PROG.
SELECT
VARIABLE SEARCH
PAUSE/STILL
REW
PLAY
FF
1
2
3
4
5

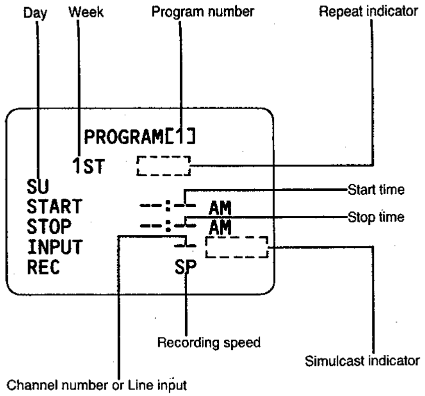
1 Press the PROG. button. The screen will change to the Timer Set mode for "PROGRAM (1)" with "1ST SU" blinking. You are ready to enter the data into No. 1 program memory.

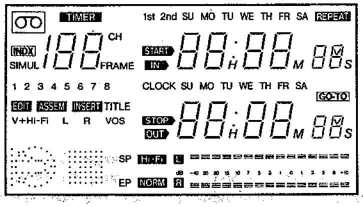
- Press the PROG. button repeatedly to select program memories 2 through 8.
- If left for more than 60 seconds without filling in the data, the Timer Set mode will be cancelled.
- To cancel the On-Screen Timer Set mode in the middle of timer programming, press the DISPLAY button.
  (Pressing the OS COUNT button also cancels the on-screen display, but does not disengage the Timer Set mode.)

2 Press the "+" (or "–") button to enter the day and week according to the following sequence.

→ 1ST SU~SA → 2ND SU~SA → 1ST SU~SA REPEAT →
→ 2ND SU~SA REPEAT → SU MO TU WE TH FR SA REPEAT →
→ MO TU WE TH FR SA REPEAT →
→ MO TU WE TH FR REPEAT ┐

Then, press the SELECT button. The START time hour will start blinking.


Day
Week
Program number
Repeat indicator
PROGRAM[1]
1ST
SU
START
STOP
INPUT
REC
AM
AM
SP
Start time
Stop time
Recording speed
Simulcast indicator
Channel number or Line input


TIMER
1st 2nd SU MO TU WE TH FR SA
REPEAT
INDX
SIMUL
CH
FRAME
START
IN
H
M
S
1 2 3 4 5 6 7 8
CLOCK SU MO TU WE TH FR SA
GO-TO
EDIT
ASSEM
INSERT
TITLE
V+HI-FI L R VOS
STOP
OUT
SP
HI-FI
EP
NORM
L
R

3 Enter the data using the "+" or "–" button.

4 Continue in this manner to select and enter data for START time, STOP time, INPUT channel, and REC speed by alternately pressing the SELECT button, then the "+/–" buttons.

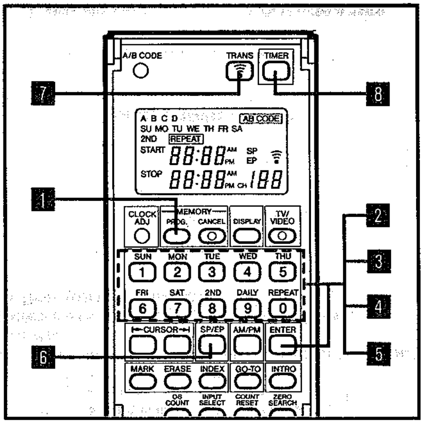
- To program for FM simulcast recording or external source recording, press the INPUT SELECT button while the INPUT channel position is blinking.
- If correction is required, press the SELECT button repeatedly until the intended position blinks and enter new data with the "+/–" buttons.
- After confirming the preset data, you can advance to the next program, if necessary, by pressing the PROG. button.
- After all necessary programs have been preset, proceed to the next step.

5 Press the TIMER button.

- The TIMER indicator will light on the display panel. (For error indications, see page 13.)
- The display panel will return to the Clock mode, also showing the program numbers for which recording data has been preset.

C. LCD REMOTE TIMER PROGRAMMING

- The remote control incorporates 4 program memories: A, B, C and D. These are independent of the VCR's timer memories 1 to 8.
- These 4 program memories can be pre-programmed and held in memory, even after they have been transferred.


A/B CODE
TRANS
TIMER
A B C D
AB CODE
SU MO TU WE TH FR SA
2ND REPEAT
START
STOP
CLOCK ADJ
MEMORY
PROG.
CANCEL
DISPLAY
TV/VIDEO
SUN MON TUE WED THU
1 2 3 4 5
FRI SAT 2ND DAILY REPEAT
6 7 8 9 0
CURSOR
SP/EP
AM/PM
ENTER
MARK ERASE INDEX GO-TO INTRO
OS COUNT
INPUT SELECT
COUNT RESET
ZERO SEARCH
1
2
3
4
5
6
7
8

1 Press the MEMORY PROG. button.

- The LCD will be activated for program "A" ① with "SU" ② blinking.
- To advance to programs B, C or D, press again.

2 Key in the day ②; and press the ENTER button.

- To set for the 2nd week, press [8] either before or after setting the day.
- To set for weekly serial recording ③, press [0].
- To set for daily serial recording, press [9] according to the following sequence:

→ SU MO TU WE TH FR SA REPEAT →
→ MO TU WE TH FR SA REPEAT →
→ MO TU WE TH FR REPEAT ┐

3 Key in the start time ④ and press the ENTER button.

- To specify AM or PM, press the AM/PM button either before or after setting the time.
- Invalid time numbers will be rejected.

4 Key in the stop time ⑤ and press the ENTER button.

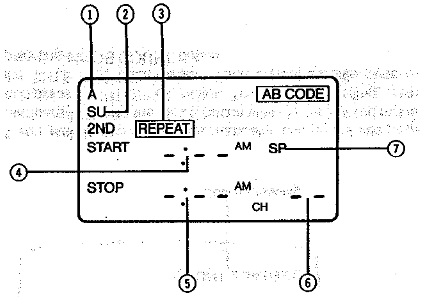
- Specify AM or PM.

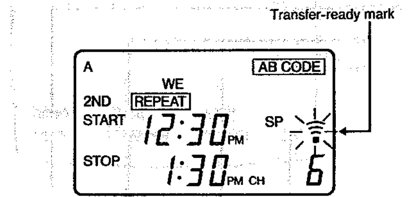
5 Key in the channel numbers ⑥ and press the ENTER button.

- For programming the timer to record an external source, press [0] while the channel is blinking; "0" will appear on the LCD, then change to "AU" in a few seconds.
- Programming for FM simulcast recording is not possible on the LCD.

6 Specify the recording speed ⑦ by pressing the SP/EP button, and press the ENTER button.

- After all program items have been set, the "transfer-ready" mark will appear and blink.


①
②
③
A
AB CODE
SU
2ND
REPEAT
START
AM
SP
⑦
④
STOP
AM
CH
⑤
⑥


Transfer-ready mark
A
AB CODE
WE
2ND
REPEAT
START
12:30 PM
SP
STOP
1:30 PM
CH
6

7 Direct the remote control to the recorder's remote sensor window and press the TRANS button.

- The programmed data will be loaded in one of the VCR's memories (1-8), the vacant one of the smallest number.
- When a program containing an "AUX" setting is transferred to the recorder, "L-1" will appear in the channel position on the display panel. (If your external source is connected to the LINE IN-1 S-VIDEO connector, be sure to change the INPUT SELECT setting to "S-1" at this time.)
- Invalid channel numbers will not be rejected when entered in the remote control's memory data. However, data with an invalid channel number will be rejected and the clock display on the display panel will blink when transfer is attempted to the recorder. Recheck the programmed data.
- If all program memories are full, the VCR's clock display will blink and transmission will not take place.
- When this happens, check the VCR's memories on-screen and cancel unnecessary programs. For this purpose, press the PROG. button to call up the on-screen PROGRAM display. When a program that you do not wish to keep is reached by pressing the PROG. button, cancel it by pressing the CANCEL button.
- After having cleared the VCR's program memory, transfer the data once again. If the LCD goes out, press the MEMORY PROG. button to call up the desired program and, after making sure that the transfer-ready mark is blinking, press the TRANS button.

8 Press the TIMER button.

- The TIMER indicator on the display panel will light. (For error indications, see page 13.)

IMPORTANT INFORMATION ON TIMER RECORDING

VARIETY OF DAY SETTING POSSIBILITIES

No.	Setting	Indication
1	One day of the 1st week	1st + Day
2	One day of the 2nd week	2nd + Day
3	Weekly serial recording from the 1st week	1st + Day + REPEAT
4	Weekly serial recording from the 2nd week	2nd + Day + REPEAT
5	Daily serial recording from Sunday through Saturday week after week	All days + REPEAT
6	Daily serial recording from Monday through Saturday week after week	MON through SAT + REPEAT
7	Daily serial recording from Monday through Friday week after week	MON through FRI + REPEAT

Note:

- The 1st week or 2nd week do not refer to weeks on the calendar; the 1st week refers to the seven-day period from the present day and the 2nd week, to the following seven-day period. These two weeks are counted from the time of setting.

ERROR INDICATIONS

- When the TIMER button is pressed with a cassette loaded and the timer correctly programmed, the TIMER indicator on the display will light with the corresponding preset program number(s) also lighting and the power is turned off.
- When you have preset several programs at a time, confirm that all the preset program numbers light together with the TIMER indicator when the TIMER button is pressed. The program whose number does not light has not been correctly preset. Recheck the programmed data.
- If all programs have been wrongly preset, the TIMER indicator will blink for about 10 seconds when the TIMER button is pressed, and then the Timer Standby mode will be cancelled.
- If the TIMER button is pressed when a cassette is not loaded, the TIMER indicator will continue blinking. Also a programmed timer recording will not be executed, even if you insert a cassette after the start time has passed.
- If a cassette with its safety tab removed has been loaded, it will be ejected automatically when the TIMER button is pressed. The TIMER and OO indicators will continue blinking.
- As long as the TIMER button is engaged with the TIMER indicator lit, unloading of a cassette is not possible.

TIMER OPERATION

- Tape loading starts 20 seconds before the preset start time and the recording start signal is triggered 2 seconds before the preset time so that recording starts exactly at the preset time.
- During timer recording, the number of the program that is presently operating will be blinking.
- After timer recording, the power is switched off and the auto-rewind mechanism does not function. If the end of the tape is reached during timer recording, the cassette is automatically ejected and then the power is switched off with the TIMER indicator blinking.
- If a power failure should occur, not only time-keeping stops, but also all the preset data will be cancelled. (A blinking SU 12:00 AM indicates this after power has been reapplied.) In such cases, first correct the time indication and then re-enter the programming data.

CHECKING THE PROGRAMMED DATA

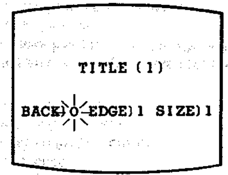
- Checking can be performed anytime, even after the TIMER button has already been engaged. To do this, press the recorder's TIMER PROGRAM button while in the Timer Standby mode. The program number will blink on the display panel and you can check each program by advancing program numbers with this button. If re-programming is required, disengage the Timer Standby mode and use the regular programming method.

AUTO-TITLING FOR TIMER RECORDING

Thanks to its built-in character generator, the HR-S10000U is able to record the channel, time, date, recording mode, recording speed, and the counter reading automatically for about 5 seconds when a timer recording starts. This function can be activated or deactivated, and also customized to your preference.

1 Press the TITLE button.

- The screen will show a title page numbered "0" with the number for "BACK" blinking.



- Here you can select one of nine background colors or the superimpose mode in which the recording data is recorded superimposed on broadcast program images.

2 Turn the JOG dial to obtain "0" for superimpose, and 1 through 9 for colors.

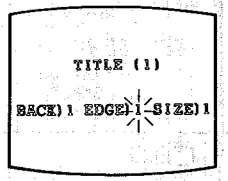
0. Superimpose
1. Light magenta
2. Marine blue
3. Light blue
4. Green
5. Yellow ocher
6. Purple
7. Sky blue
8. Lime green
9. Gray

3 Turn the SHUTTLE ring clockwise. The number for "EDGE" will blink.

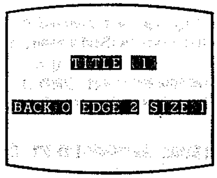
4 Select the character style by turning the JOG dial.

- Three settings are available.

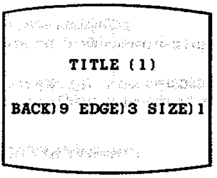
1. Edged



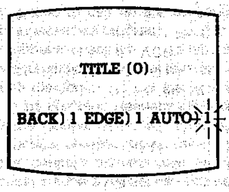
2. Solid with frame



3. Solid without frame



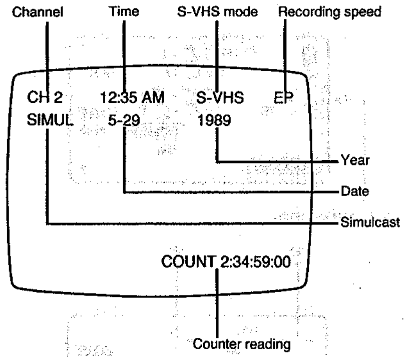
5 Turn the SHUTTLE ring clockwise. The number for "AUTO" will blink.



6 Select either "1" or "0" with the JOG dial.

1. Auto titling is available.
2. Auto titling is defeated.

- After selecting "1" for "AUTO", the following data will be automatically recorded at the beginning of each timer recording even when the 24-hour timer is used. For instant off-timer recording, however, the time and date are not recorded.



- If you wish to record the data manually, call up the title page numbered "0" with the TITLE button while in the Record mode, and press the TITLE REC button. To stop title recording, press the TITLE REC button again. Then cancel the title page by pressing the OS COUNT button.

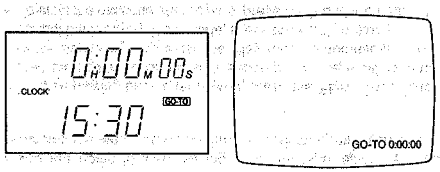
REALTIME TAPE COUNTER FUNCTIONS

Unlike usual tape counters which show tape locations in numbers, this realtime tape counter shows tape time precisely in hours, minutes and seconds (and frames on the screen) in all modes.

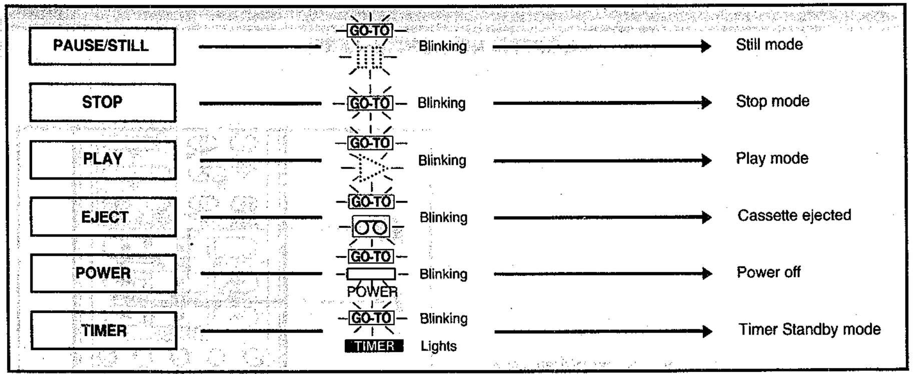
REALTIME GO-TO

To locate any point on the tape a specified time away from the current position in either direction.

1. Press the remote control's GO-TO button while in the Play, Still or Stop mode.
   - The counter will show "0H 00M 00s" (this does not mean the counter has been reset), and change to the Go-To mode. The corresponding indication will also appear on the screen.


0H 00M 00S
CLOCK
15:30
GO-TO
GO-TO 0:00:00

2. Press the CH "∨" button (for reverse direction: "–" appears in front of the first "0") or press the CH "∧" button (for forward direction: no indication).
3. Specify the time to the point to be located, by using the numeric keys.
   - Always key in a full number.
4. Press the PAUSE/STILL, STOP, PLAY, EJECT, POWER or TIMER button, depending on the mode you want to enter after the specified point is reached.
   - If the GO-TO button is pressed from the Play or Still mode, search takes place in the forward or reverse Shuttle Search mode; if the GO-TO button is pressed from the Stop mode, search takes place in the Fast Forward or Rewind mode. After the specified point is reached, the mode corresponding to the button that was pressed is engaged automatically, provided that the Still mode is not engaged from FF or REW search.


PAUSE/STILL
GO-TO
Blinking
Still mode
STOP
GO-TO
Blinking
Stop mode
PLAY
GO-TO
Blinking
Play mode
EJECT
GO-TO
Blinking
Cassette ejected
POWER
GO-TO
POWER
Blinking
Power off
TIMER
GO-TO
Blinking
TIMER
Lights
Timer Standby mode

ZERO SEARCH

You can use the ZERO SEARCH button to automatically locate and stop at any particular point on the tape (at the beginning of any one program or segment, for example).

1. Press the COUNT RESET button at a point which you wish to locate later. The counter on the display panel will show "0H 00M 00s".
2. After recording or playing back the tape, press the ZERO SEARCH button in the Stop mode. The tape will fast forward or rewind to the counter reading of "0H 00M 00s" (where the COUNT RESET button was pressed) and the Stop mode will be engaged automatically.

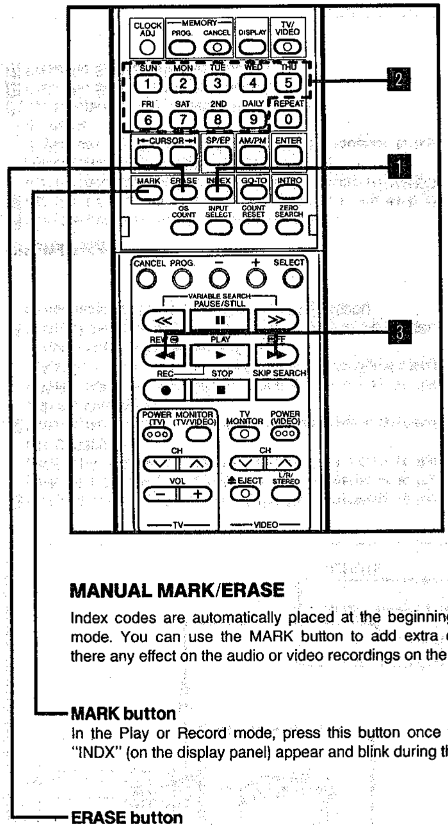
ELAPSED TIME INDICATION

When you need to know the exact time of a recording, press the COUNT RESET button before starting recording or playback. The counter will be reset to "0H 00M 00s" and show the exact elapsed time as the tape runs. Press the OS COUNT button anytime to check the current tape time position on the screen.

Notes:
- Each step in the operation procedure must be followed by the next within 60 seconds, otherwise the Go-To mode will be cancelled.
- Use of other control buttons while in the Go-To mode cancels that mode.

INDEX SEARCH FUNCTION

The Index Search function gives you automatic access to the beginning of individual recordings on the cassette tape. An index code is automatically placed on the tape's control track each time a recording is begun. You can access any one of up to 9 of these indexed segments in either the forward or reverse direction.


CLOCK ADJ
MEMORY
PROG.
CANCEL
DISPLAY
TV/VIDEO
SUN
MON
TUE
WED
THU
1
2
3
4
5
FRI
SAT
2ND
DAILY
REPEAT
6
7
8
9
0
CURSOR
SP/EP
AM/PM
ENTER
MARK
ERASE
INDEX
GO-TO
INTRO
OS COUNT
INPUT SELECT
COUNT RESET
ZERO SEARCH
CANCEL
PROG.
–
+
SELECT
VARIABLE SEARCH
PAUSE/STILL
REW
PLAY
FF
REC
STOP
SKIP SEARCH
POWER (TV)
MONITOR (TV/VIDEO)
TV MONITOR
POWER (VIDEO)
CH
CH
VOL
EJECT
L/R/STEREO
TV
VIDEO
2
1
3

INDEX SEARCH

1. Press the INDEX button while in the Play or Stop mode.
   - The channel display of the display panel will change to the Index Search mode and "INDX" will light. "INDEX" will appear on the screen.
2. Specify the index number (1-9) using the numeric keys within 10 seconds.
   - The specified number will appear in the display panel and on the screen.
3. Press either the FF or REW button.
   - The tape will move and the index numbers count down to 0, where normal playback will start.
   - If the INDEX button was pressed in the Play mode, the screen shows search pictures; if the button was pressed in the Stop mode, the index codes are detected in the Rewind or Fast Forward mode.

Notes:
- To cancel the Index Search mode before completion, press the PLAY or STOP button.
- If the end of the tape is reached while still in the Index Search mode, the mode is cancelled and the tape rewound.
- Use of the VCR's INDEX button locates only the beginning of the current program (by pressing the REW button) or next program (by pressing the FF button).

MANUAL MARK/ERASE

Index codes are automatically placed at the beginning of recordings which are started from the Stop or Timer Standby mode. You can use the MARK button to add extra codes, and the ERASE button to erase codes. In neither case is there any effect on the audio or video recordings on the tape.

MARK button

In the Play or Record mode, press this button once to put an index code onto the tape. "MARK" (on the screen) and "INDX" (on the display panel) appear and blink during the marking process.

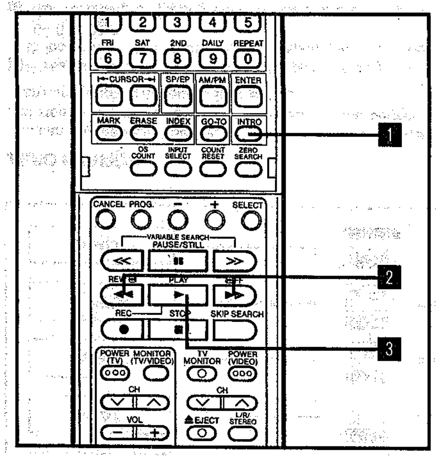
ERASE button

In the Play or Still mode, press this button to erase the next index code. The tape is automatically fast-forwarded and when an index code is detected, it will be erased automatically. "ERASE" (on the screen) and "INDX" (on the display panel) remains lit during the searching process and blinks during the erasing process.

Notes:
- Index codes cannot be added or erased on a tape with its safety tab removed.
- The Erase mode is cancelled either after one index code has been erased or the Play mode is cancelled.
- Changing the index codes in the vicinity of switching points between SP and EP recordings will distort the pictures.

INTRO SEARCH FUNCTION

The Intro Search function lets you visually check the contents of each recording by playing back in fast motion a short segment of a program each time an index code is detected.



1. Press the INTRO button while in the Play or Stop mode.
   - "INDEX" will appear on the screen. (The "INDX" indicator on the will light display panel.)
2. Press the FF or REW button within 2 seconds.
   - The Intro Search will start in the corresponding direction.
   - Each time an index code is detected, the corresponding part is played back at the search speed (7 times normal is SP and 21 times normal in EP mode) for about 5 seconds.
3. When you find the section you want to view, simply press the PLAY button.
   - Normal playback will start.

NEXT-FUNCTION MEMORY

Memory Play/Eject/Power-Off/Timer Standby

If you are going to start playing back the tape, eject the cassette, turn the power off or engage the Timer Standby mode after rewinding the tape, you do not have to wait for completion of rewind to press the corresponding button.

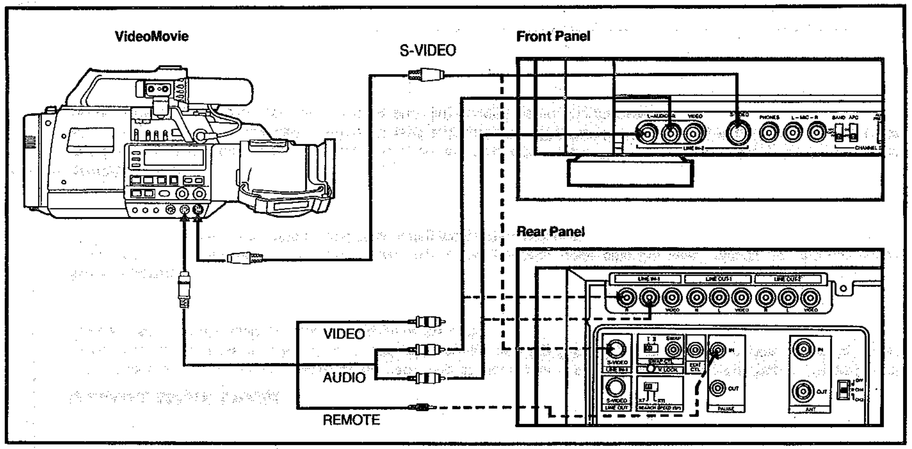
- To start playing back after rewind, press the REW button, and then the PLAY button within 2 seconds. The tape will rewind to the beginning and enter the Play mode automatically. (To cancel the Memory Play mode, press the PLAY button.)
- To eject the cassette after rewind, press REW and then EJECT within 2 seconds. (To cancel the Memory Eject mode, press STOP.)
- To turn the power off after rewind, press REW and then POWER within 2 seconds. (To cancel the Memory Power-off mode, press POWER.)
- To engage the Timer Standby mode after rewind, press REW and then TIMER within 2 seconds. (To cancel the Memory Timer Standby mode, press POWER.)

Memory Play	REW	→	PLAY	Blinking	→	Play mode
Memory Eject	REW	→	EJECT	Blinking	→	Cassette ejected
Memory Power-off	REW	→	POWER	POWER Blinking	→	Power off
Memory Timer Standby	REW	→	TIMER	TIMER Lights	→	Timer Standby mode
	within 2 seconds					

RECORDING WITH A VIDEO CAMERA

CONNECTIONS

When using an S-VHS VideoMovie



1. Connect the VideoMovie's S-VIDEO OUT connector to the LINE IN-1 S-VIDEO connector on the rear panel or to the LINE IN-2 S-VIDEO connector on the front panel of the HR-S10000U.
2. Make audio connections using the AV output cable provided with the VideoMovie.
   - With monaural VideoMovie models, connection to the AUDIO L connector also results in the audio signal being input to the R-channel as well.
3. Connect the mini-plug of the AV output cable to the PAUSE IN connector on the rear panel of the HR-S10000U.

When using a VHS VideoMovie or other camcoders

- Simply connect the VideoMovie's AV OUT connector to the LINE IN-1 or LINE IN-2 connectors of the HR-S10000U. Audio and PAUSE IN connections are the same as with an S-VHS VideoMovie.

OPERATION

1. Turn the power on for all connected equipment.
2. Set the TV receiver to your video channel, if you wish to monitor recording on the TV screen, and press the TV/VIDEO select button to turn on the "VIDEO" indicator. (If you use the AV connection, set the TV receiver to the AV mode.)
3. Load a cassette with its safety tab in place.
4. Press the SP/EP button as required.
5. Press the S-VHS button as required.
6. Set the ALC switch to ON for automatic level adjustment, or make the necessary audio level adjustments.
7. Press the INPUT SELECT button to select the proper input line — L1, S1, L2 or S2.
8. Engage the HR-S10000U in the Record-Pause mode.
9. Operate the VideoMovie's start/stop switch.
   - Recording starts and stops by pressing this switch.
10. To end recording, press the STOP button on the HR-S10000U.

Notes:
- If feedback noise (whistling or howling) is heard from the TV receiver, reduce the volume or move the camera's microphone farther away from the TV receiver.
- When playing back the recording made on the HR-S10000U, the picture cannot be viewed on the camera's viewfinder.
- For VideoMovie operation refer to the instruction manual for the relevant model.
- High-resolution video cameras can also be used with the HR-S10000U. For this purpose, appropriate camera adapters are required. For details consult your local JVC dealer.

JVC

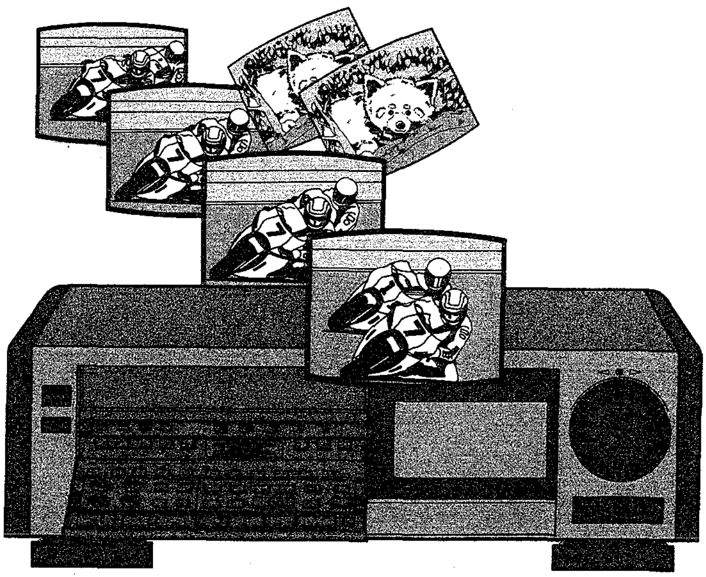
INSTRUCTIONS

HR-S10000U

SUPER VHS EDITING RECORDER

VOL.3

EDITING OPERATIONS



S VHS

Hi-Fi STEREO

HQ

For Customer Use:
Enter below the Serial No. which is located on the rear of the cabinet. Retain this information for future reference.

Model No. **HR-S10000U**

Serial No. __________

PU30425-1091

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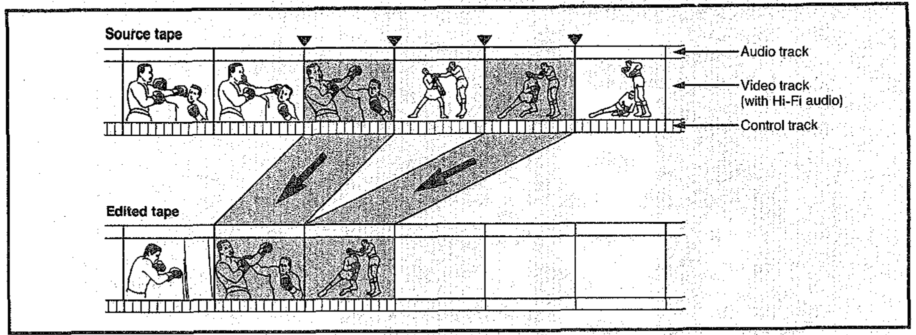
TYPES OF ELECTRONIC EDITING

There are two different types of electronic editing: assemble editing and insert editing. The signals to be assembled or inserted can be direct camera signals, TV broadcast signals, or playback signals from another video cassette recorder. But, in most cases, editing is performed from one tape to another using two VCRs, or using one VCR and one VideoMovie (camcorder). With its preroll function and flying erase head, the HR-S10000U ensures accurate editing while maintaining the best possible picture quality.

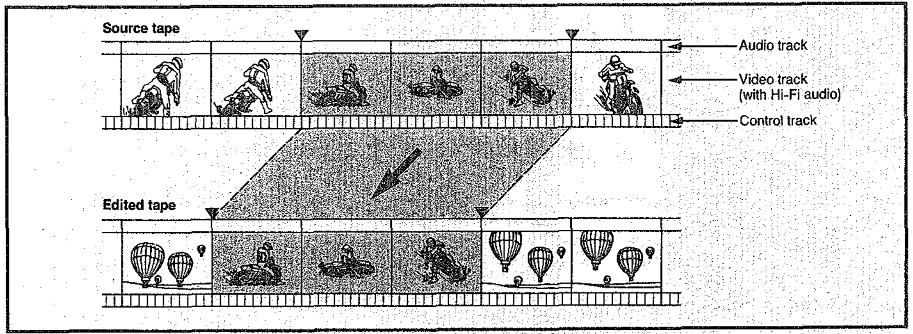
ASSEMBLE EDITING



Assemble editing is a technique in which video and audio signals together with a control signal are newly recorded in succession to compose a tape containing extended program material. With the HR-S10000U, automatic assemble editing of up to 8 preprogrammable edits is possible, especially convenient for editing short scenes one after another.

Use the Assemble Edit mode:
- To shorten program time, from a 2-hour recording into a 1-hour tape, for example.
- To rearrange the sequence of recorded scenes to develop some particular theme.
- To use the exact same scene at several points on a tape.

INSERT EDITING



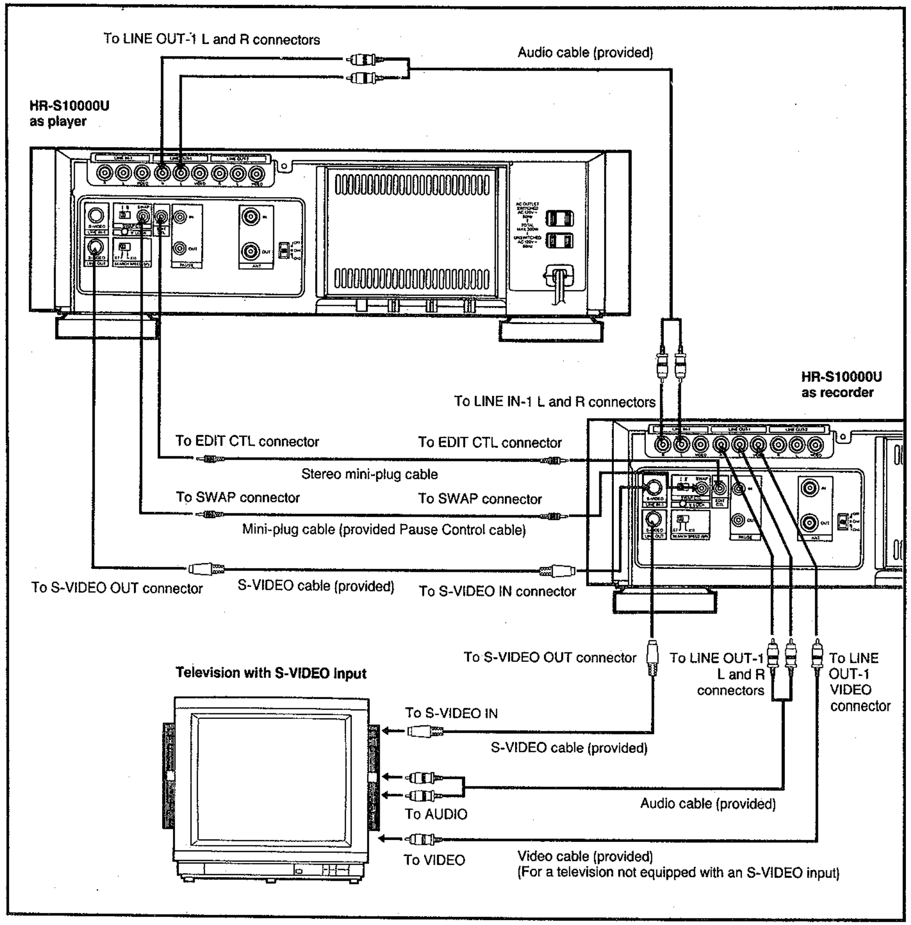
Insert editing is a technique for replacing part of the recorded tape with new material, utilizing the control signal already recorded. Thanks to the split-insert system, the HR-S10000U allows audio and video (with Hi-Fi audio) tracks to be inserted either separately or simultaneously. The channel (L or R) for normal audio can also be selected for inserting new audio. Moreover, by using the VOS function, the video signal can be independently recorded over an already-recorded Hi-Fi audio signal.

Use the Insert Edit mode:
- To insert titles or graphics.
- To add narration or music.
- To create unique video productions.

CONNECTIONS AND POSSIBLE FUNCTIONS

EDITING SYSTEM A (EDIT CTL CONNECTION)

When using two HR-S10000U's, connect them as illustrated.


To LINE OUT-1 L and R connectors
Audio cable (provided)
HR-S10000U
as player
HR-S10000U
as recorder
To LINE IN-1 L and R connectors
To EDIT CTL connector
To EDIT CTL connector
Stereo mini-plug cable
To SWAP connector
To SWAP connector
Mini-plug cable (provided Pause Control cable)
To S-VIDEO OUT connector
S-VIDEO cable (provided)
To S-VIDEO IN connector
To S-VIDEO OUT connector
To LINE OUT-1 L and R connectors
To LINE OUT-1 VIDEO connector
Television with S-VIDEO input
To S-VIDEO IN
S-VIDEO cable (provided)
To AUDIO
Audio cable (provided)
To VIDEO
Video cable (provided)
(For a television not equipped with an S-VIDEO input)

Notes:

- The HR-S10000U has a swap control function which lets you control another VCR with the control buttons of the HR-S10000U. If you are not going to use this function, SWAP connection is not necessary.
- If two HR-S10000U's are connected via their SWAP connectors as shown above, set the SWAP CTL switch to the "II" position.
- Obtain an appropriate cable for EDIT CTL connection. If you choose to use the SWAP function, you can use the provided Pause Control cable to make this connection.

POSSIBLE EDITING FUNCTIONS WITH EDIT CTL CONNECTION

- Automatic assemble editing with preview capability
- Semi-automatic assemble editing with preview capability
- Manual preroll assemble editing
- Automatic insert editing with preview capability
- Semi-automatic insert editing with preview capability
- Manual insert editing

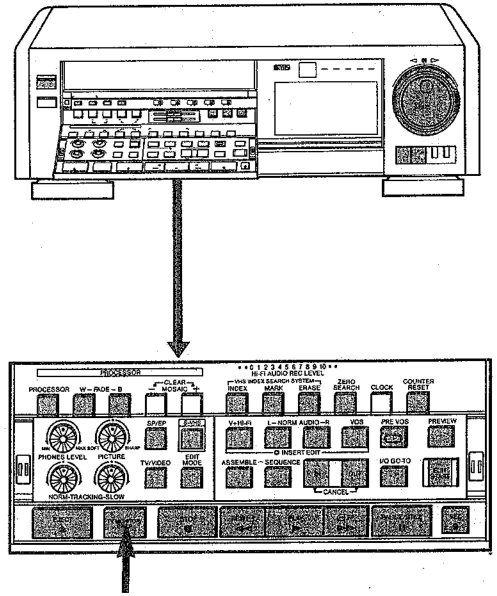
Note:
EDIT CTL connection is possible only when using two HR-S10000Us.

SWAP CONTROL

When two HR-S10000U's are connected via their SWAP connectors, most controls of one HR-S10000U can be operated using the other HR-S10000U's controls. To operate the connected one, press the relevant button while keeping the TV MONITOR/SWAP button pressed.

The swap-controllable buttons are:

- POWER
- INDEX
- MARK
- ERASE
- COUNTER RESET
- SP/EP
- TV/VIDEO
- EJECT
- TV MONITOR/SWAP
- STOP
- REW
- PLAY
- FF
- PAUSE/STILL
- REC
- INPUT SELECT
- AUDIO MONITOR
- L/R STEREO
- HIGH SPEED ERASE
- REC MUTE
- TIMER
- OS COUNT
- CHANNEL/SET
- JOG/SHUTTLE (search functions only)
- PROCESSOR
- FADE W/B
- ZERO SEARCH
- S-VHS
- EDIT MODE
- INSERT V + Hi-FI
  NORM AUDIO L/R
  VOS
- PRE VOS
- PREVIEW
- ASSEMBLE
- SEQUENCE
- IN/OUT
- I/O GO-TO
- EDIT START



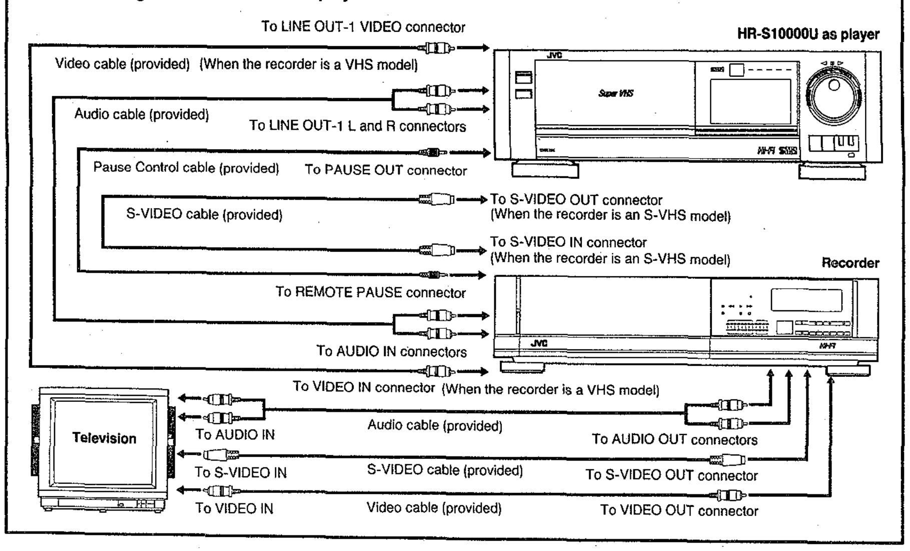
Note:

- Swap control signals are transmitted in the form of remote control signals. With the SWAP CTL switch set to "II", control signals take the form of remote control C code signals which have no relation to A/B code switching.

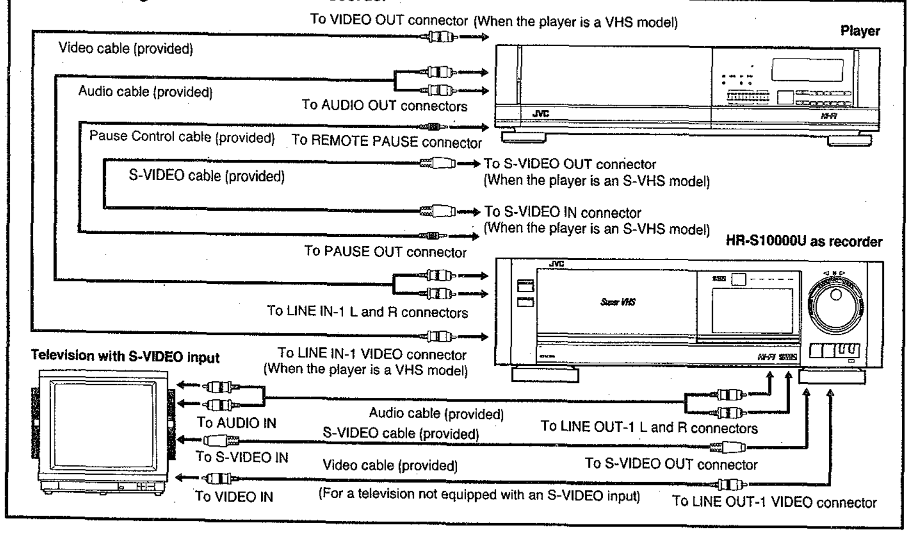
EDITING SYSTEM [B] (PAUSE CONNECTION)

When using a VCR equipped with a REMOTE PAUSE connector in combination with the HR-S10000U, connect them as illustrated.

When using the HR-S10000U as a player


To LINE OUT-1 VIDEO connector
HR-S10000U as player
Video cable (provided) (When the recorder is a VHS model)
Audio cable (provided)
To LINE OUT-1 L and R connectors
Pause Control cable (provided)
To PAUSE OUT connector
S-VIDEO cable (provided)
To S-VIDEO OUT connector (When the recorder is an S-VHS model)
To S-VIDEO IN connector (When the recorder is an S-VHS model)
Recorder
To REMOTE PAUSE connector
To AUDIO IN connectors
To VIDEO IN connector (When the recorder is a VHS model)
Television
To AUDIO IN
Audio cable (provided)
To AUDIO OUT connectors
To S-VIDEO IN
S-VIDEO cable (provided)
To S-VIDEO OUT connector
To VIDEO IN
Video cable (provided)
To VIDEO OUT connector

When using the HR-S10000U as a recorder


To VIDEO OUT connector (When the player is a VHS model)
Player
Video cable (provided)
Audio cable (provided)
To AUDIO OUT connectors
Pause Control cable (provided)
To REMOTE PAUSE connector
S-VIDEO cable (provided)
To S-VIDEO OUT connector (When the player is an S-VHS model)
To S-VIDEO IN connector (When the player is an S-VHS model)
HR-S10000U as recorder
To PAUSE OUT connector
To LINE IN-1 L and R connectors
Television with S-VIDEO input
To LINE IN-1 VIDEO connector (When the player is a VHS model)
To AUDIO IN
Audio cable (provided)
S-VIDEO cable (provided)
To LINE OUT-1 L and R connectors
To S-VIDEO IN
Video cable (provided)
To S-VIDEO OUT connector
To VIDEO IN
(For a television not equipped with an S-VIDEO input)
To LINE OUT-1 VIDEO connector

Notes:
- If the second VCR is equipped with a SWAP connector, and if you want to use the swap control function, connect the HR-S10000U's SWAP connector to the second VCR's SWAP connector, using a mini-plug cable.
- Set the SWAP CTL switch to the "I" position.
- Obtain an appropriate cable for SWAP connection.

POSSIBLE EDITING FUNCTIONS WITH PAUSE CONNECTION

When using the HR-S10000U as a player
- Automatic assemble editing
- Semi-automatic assemble editing
- Manual preroll assemble editing

When using the HR-S10000U as a recorder
- Semi-automatic insert editing
- Manual insert editing

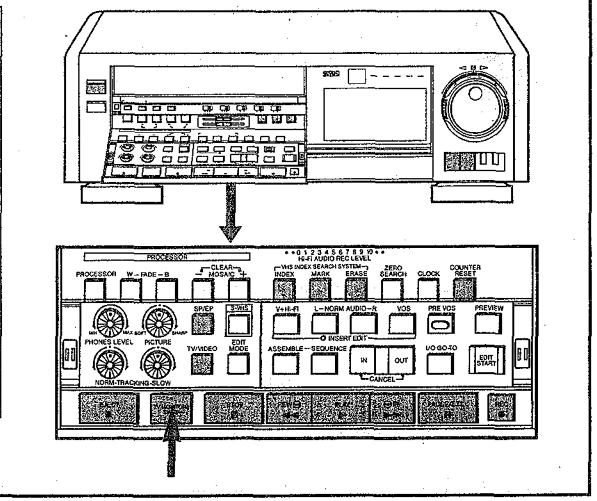
Note:
PAUSE connection is possible when using the HR-S10000U in combination with a VCR equipped with a REMOTE PAUSE connector. If the REMOTE PAUSE connector is designed to accept preroll commands, synchronized preroll editing is performed for higher editing accuracy. JVC's current video decks having this capability are:

Super VHS models	**HR-S6600U**	
	HR-S5500U	
	HR-S5000U	
Hi-Fi VHS models	**HR-D530U**	**HR-D840U**
	HR-D750U	**HR-D850U**
	HR-D830U	
VHS models	**HR-D400U**	**HR-D610U**
	HR-D410U	**HR-D620U**
	HR-D440U	**HR-D700U**

SWAP CONTROL

When a JVC VCR equipped with a SWAP connector is connected to the HR-S10000U, many controls of the connected VCR can be operated using the HR-S10000U's controls. To operate the connected VCR, press the relevant button while pressing the TV MONITOR/SWAP button.
Among those current models with preroll-capable REMOTE PAUSE connectors, the HR-D850U and the HR-S6600U also have a SWAP connector. If SWAP connection is made, they can be controlled with the HR-S10000U's controls. Be sure to set the SWAP CTL switch to the "I" position when the second VCR is not an HR-S10000U.

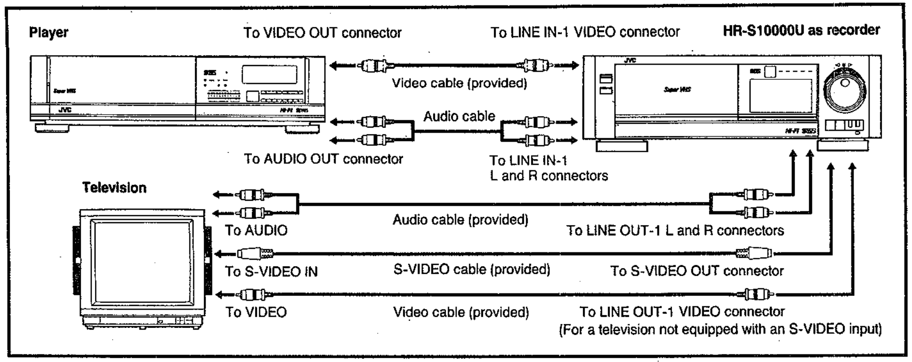
The swap-controllable buttons are:
- POWER
- INDEX
- MARK
- ERASE
- COUNTER RESET
- SP/EP
- TV/VIDEO
- EJECT
- STOP
- REW
- PLAY
- FF
- PAUSE/STILL
- REC
- AUDIO MONITOR
- L/R STEREO
- TIMER
- CHANNEL/SET
- INPUT SELECT
- OS COUNT


PROCESSOR
W—FADE—B
CLEAR
MOSAIC
Hi-Fi AUDIO REC LEVEL
VHS INDEX SEARCH SYSTEM
INDEX
MARK
ERASE
ZERO SEARCH
CLOCK
COUNTER RESET
SP/EP
S-VHS
V-Hi-Fi
L—NORM AUDIO—R
VOS
PRE VOS
PREVIEW
PHONES LEVEL
PICTURE
TV/VIDEO
EDIT MODE
INSERT EDIT
ASSEMBLE—SEQUENCE
IN
OUT
I/O GO-TO
EDIT START
CANCEL
NORM-TRACKING-SLOW

Note:
- Swap control signals take the form of remote control A code signals. Therefore, the VCR must be set to respond to A code signals.

EDITING SYSTEM C

Even with a system including a VCR not equipped with a REMOTE PAUSE connector, the HR-S10000U's editing functions can be effectively used in manual assemble and insert editing. In this system, it is recommended that you use the HR-S10000U as a recorder.


Player
To VIDEO OUT connector
To LINE IN-1 VIDEO connector
HR-S10000U as recorder
Video cable (provided)
Audio cable
To AUDIO OUT connector
To LINE IN-1
L and R connectors
Television
Audio cable (provided)
To AUDIO
To LINE OUT-1 L and R connectors
To S-VIDEO IN
S-VIDEO cable (provided)
To S-VIDEO OUT connector
To VIDEO
Video cable (provided)
To LINE OUT-1 VIDEO connector
(For a television not equipped with an S-VIDEO input)

IMPORTANT INFORMATION ON EDITING

TERMINOLOGY

Edit-in and edit-out points
These refer to the beginning (in-point) and end (out-point) of a scene on the source tape to be transferred to the tape in the recorder, or the beginning and end of a segment to be replaced with new material.

Preroll
Extra backspacing for increased editing accuracy. The HR-S10000U rewinds the tape farther past the edit-in point so that editing starts exactly at the edit-in point with all the mechanisms having reached their steady state. With EDIT CTL or PAUSE connection, the preroll command is given to the connected VCR for synchronized preroll editing. The amount of preroll differs depending on the operation used.

Auto or semi-auto editing with EDIT connection:
  Approx. 15 seconds of program time
Auto or semi-auto editing with PAUSE connection:
  Approx. 10 seconds of program time
Manual editing with PAUSE connection:
  Approx. 6 seconds of program time

Split insert
A function which permits inserting of only the selected signal(s). With the HR-S10000U, the following signals can be inserted independently or in combination:

- Video + Hi-Fi audio
- Normal audio L
- Normal audio R
- VOS (video only)

During manual insert editing, the signals to be inserted can be changed at any time.

EE monitor
EE stands for Electric-Electric and this term means monitoring a signal that is being input to the recorder and not yet recorded on the magnetic tape.

OPERATION

- With the HR-S10000U being used as the recorder and while it is in the Play mode, the EE monitor function allows you to view the playback signal of the source tape by pressing the TV MONITOR/SWAP button.

PRECAUTIONS

- Do not operate the JOG/SHUTTLE dials or any other button while automatic editing is in progress.
- For the preroll function to operate properly, more than 15 seconds of control pulses are required prior to reaching the edit-in point. Make sure that the edit-in point is located more than 15 seconds of program time from the beginning of the source tape.
- When both EDIT CTL and PAUSE are used for connection, EDIT CTL has priority. Therefore, if editing procedures with PAUSE connection are to be applied when using two HR-S10000U's, leave their EDIT CTL connectors open.
- Insert editing is performed with reference to an already-recorded control signal. Therefore, inserting signals on a tape with intermittently missing control pulses (i.e. with segments not previously recorded) will result in flaws such as distortion at edit-out points or will result in an edit shorter than intended.
- With insert editing, the new material is recorded at the recording speed (SP or EP) at which the original recording was made. Therefore, if the source tape contains both SP and EP recordings, distortion might occur at points where the recording mode changes.

ASSEMBLE EDITING

AUTOMATIC ASSEMBLE EDITING (WITH EDIT CTL OR PAUSE CONNECTION)

By specifying up to 8 sets of edit-in and edit-out points, assemble editing can be performed fully automatically.

Required equipment

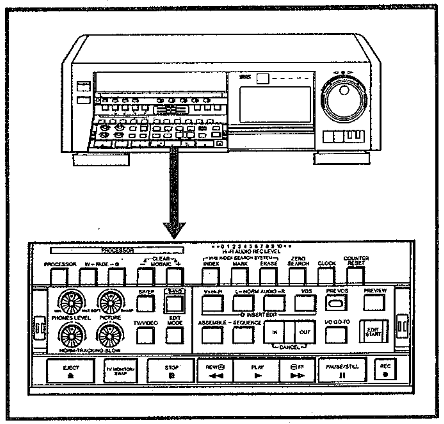
- HR-S10000U as a source player and another HR-S10000U as a recorder. (Connect EDIT CTL to EDIT CTL.)
- HR-S10000U as a source player and another JVC deck equipped with a REMOTE PAUSE terminal as a recorder. (Connect PAUSE OUT to REMOTE PAUSE.)

Preparation

- Set the source player so that the best possible picture and sound (to be edited) can be obtained. (Press the EDIT MODE button so that "EDIT" appears in the display panel.)
- Set the recorder's INPUT SELECT switch as required.

Notes:

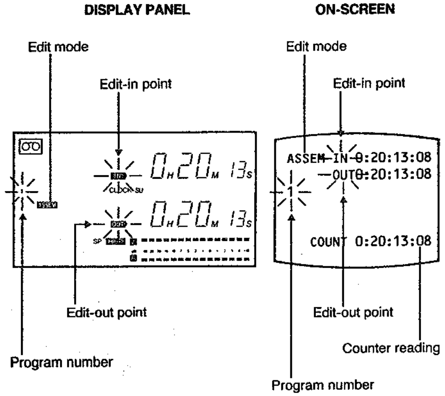
- For connections refer to page 3 or page 5.
- When both EDIT CTL and PAUSE are used for connection, EDIT CTL has priority.



Operation

PLAYER (HR-S10000U)

1. Press the ASSEMBLE button.
2. Play back the source tape.
3. Search for a desired edit-in point using the JOG/SHUTTLE control dials.
   - Normal audio can be monitored during search by selecting "NORM" with the AUDIO MONITOR button.
   - With tapes not containing Hi-Fi audio recordings, first press the TV MONITOR/SWAP button, then press the AUDIO MONITOR button to select "NORM".
4. Press the IN button at the edit-in point.
   - The edit-in point has been stored into memory.
   - Set for fade-in if required. (See page 14.)
5. Search for a desired edit-out point.
6. Press the OUT button.
   - The edit-out point has been stored in memory.
   - Set for fade-out if required. (See page 14.)
7. To program another edit, press the SEQUENCE button.
   - Program number 2 will appear on the display panel and screen. To advance to programs 3 to 8, press the SEQUENCE button.
8. Repeat steps 3 through 6 to store another set of edit data into memory. Up to 8 sets of edit data can be programmed. Leave the player in the Still mode.


DISPLAY PANEL
Edit mode
Edit-in point
0H 20M 13S
0H 20M 13S
Edit-out point
Program number
ON-SCREEN
Edit mode
Edit-in point
ASSEM-IN-0:20:13:08
-OUT0:20:13:08
1
COUNT 0:20:13:08
Edit-out point
Counter reading
Program number

With EDIT CTL connection

9. Play back the tape on the recorder to search for the edit-in point.
10. Put the recorder in the Still mode at the edit-in point.
11. Press the player's EDIT START button.
    - Assemble editing will start.
    - After completion of preprogrammed edits, both the player and the recorder enter the Still mode.

With PAUSE connection

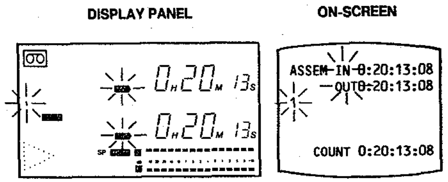
9. Play back the tape on the recorder to search for the edit-in point.
10. Put the recorder in the Record-Pause mode at the edit-in point.
11. Press the player's EDIT START button.
    - Assemble editing will start.
    - After completion of preprogrammed edits, the player enters the Still mode and the recorder enters the Record-Pause mode.

SEMI-AUTOMATIC ASSEMBLE EDITING (WITH EDIT CTL OR PAUSE CONNECTION)

This is one type of assemble editing technique and is performed only by specifying an edit-in point. The edit-out point can be determined while editing is in progress.

PLAYER (HR-S10000U)

1. Press the ASSEMBLE button.
2. Play back the source tape.
3. Search for a desired edit-in point using the JOG/SHUTTLE control dials.
   - Normal audio can be monitored during search by selecting "NORM" with the AUDIO MONITOR button.
   - With tapes not containing Hi-Fi audio recordings, first press the TV MONITOR/SWAP button, then press the AUDIO MONITOR button to select "NORM".
4. Press the IN button at the edit-in point.
   - The edit-in point has now been stored into memory.
   - Set for fade-in, if required. (See page 14.)
   - Leave the player in the Still mode.



With EDIT CTL connection

5. Play back the tape on the recorder to search for the edit-in point.
6. Put the recorder in the Still mode at the edit-in point.
7. Press the player's EDIT START button.
   - Assemble editing will start.
8. Press the OUT button at a point where you want editing to stop.
   - After completion of an edit, both the player and the recorder enter the Still mode.

For the next edit

9. Press the IN and OUT buttons simultaneously.
   - The previous editing data has now been cancelled.
10. Repeat steps 3 through 8.
    - Step 5 can be omitted when the next edit should start at the end of the previous edit.

Notes for "AUTOMATIC and SEMI-AUTOMATIC ASSEMBLE EDITING":

- Do not specify an edit-in point at a position which takes more than 5 minutes to locate at the search speed from the edit-out point of the last program, otherwise editing will not be performed.
- On the source tape, make sure that no edit-in point is set within 10 seconds of the beginning of tape, otherwise editing will not be performed.
- The counter reading for the edit-out point must always be larger than that for the edit-in point.
- To cancel the programmed data, select a program number to be cancelled and press both the IN and OUT buttons simultaneously.
- All programmed data can be cancelled at a time by pressing the ASSEMBLE button.
- Do not operate the JOG/SHUTTLE dials or any other button while automatic editing is in progress.
- If you want to stop automatic editing midway, press the STOP button.

With PAUSE connection

5. Play back the tape on the recorder to search for the edit-in point.
6. Put the recorder in the Record-Pause mode at the edit-in point.
7. Press the player's EDIT START button.
   - Assemble editing will start.
8. Press the OUT button at a point where you want editing to stop.
   - After completion of an edit, the player enters the Still mode and the recorder enters the Record-Pause mode.

MANUAL ASSEMBLE EDITING

Preroll assemble editing with PAUSE connection

Editing functions available with EDIT CTL and PAUSE connections all operate on a preroll principle for production of edits with stable pictures; a preroll time of about 15 seconds of program time with EDIT CTL connection, and about 10 seconds with PAUSE connection.

But, by using this manual assemble editing technique, preroll editing is also possible with a preroll time of about 6 seconds when the HR-S10000U is used as the recorder and a second VCR with a REMOTE PAUSE terminal is used as the player. To take best advantage of the HR-S10000U's quality performance (Super VHS picture quality, Hi-Fi and normal stereo sound flexibility, flying erase head, etc.), using the HR-S10000U as a recorder even for assemble editing is sometimes more desirable. For that purpose, employ this method.

1. Play back the source tape and engage the Still mode at the edit-in point. (Player)
2. Play back the recording tape and engage the Record-Pause mode at the edit-in point. (Recorder).
3. Press the EDIT START button of the recorder.
   - Both tapes will preroll in sync with each other.
   - Recording will start at the specified edit-in point.
4. To stop recording, press the PAUSE/STILL or OUT button of the recorder.
   - The player will continue playback, and the recorder will enter the Record-Pause mode.
5. To continue assemble editing, repeat steps 1 through 4.

Note:
If you want to use this manual assemble editing technique with a system composed of two HR-S10000Us, be sure to disconnect EDIT CTL.

Manual assemble editing with System C

If the player is not equipped with a REMOTE PAUSE terminal, preroll editing is not possible. For assemble editing, proceed as follows:

1. Play back the source tape and engage the Still mode slightly before the edit-in point. (Player)
2. Play back the recording tape and engage the Record-Pause mode at the edit-in point. (Recorder)
3. Press the player's PLAY button.
4. While monitoring the playback picture (use the EE monitor function), press the recorder's PLAY button when the desired edit-in point is reached.
5. To stop recording, press the PAUSE/STILL button of the recorder.
   - The player will continue playback, and the recorder will enter the Record-Pause mode.
6. To continue assemble editing, repeat steps 1 through 5.

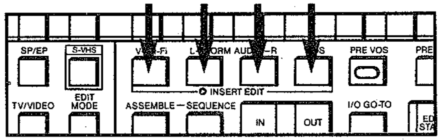
INSERT EDITING

Any section of an already-recorded tape can be replaced with new material without detectable distortion at edit-in and edit-out points.

Signal(s) that can be inserted:
- Video + Hi-Fi audio
- Normal audio (L only, R only, or both)
- Video + Hi-Fi audio + normal audio
- VOS (video only)
- VOS + normal audio (L only, R only, or both)

Preparation
- Set the source player so that the best possible picture and sound (to be edited) can be obtained. (Press the EDIT MODE button so that "EDIT" appears in the display panel.)
- Set the recorder's INPUT SELECT button as required.

Selecting the signal(s) to be inserted:
- To replace the video and Hi-Fi audio signals, press the INSERT EDIT V + Hi-Fi button. "V + Hi-Fi" will appear on the display panel and the screen.
- To replace the normal audio left-channel signal, press the NORM AUDIO L button. "L" will appear.
- To replace the normal audio right-channel signal, press the NORM AUDIO R button. "R" will appear.
- To replace both channels, press both buttons. "L" and "R" will appear.
- To insert the video signal only, press the VOS button. "VOS" will appear.
- Any combination of signals except "V + Hi-Fi" and "VOS" can be selected.



Important:
- For VOS recording, use a tape with Hi-Fi audio recorded in the Pre-VOS mode. Applying the VOS mode to a normally-recorded tape will produce distorted pictures.
- For VOS and pre-VOS recording, refer to page 13.

AUTOMATIC INSERT EDITING (WITH EDIT CTL CONNECTION)

By specifying both edit-in and edit-out points, insert editing can be performed totally automatically. This technique is possible when two HR-S10000Us are used.

RECORDER (HR-S10000U)

1 Select the signal(s) to be inserted.
- To change the signal(s), first press the engaged button to cancel the previous selection. Then press the required button.
- Any combination of buttons can be engaged except V + Hi-Fi and VOS.

2 Play back the tape and engage the Still mode near the beginning of the segment to be replaced.

3 Determine the edit-in point using the JOG/SHUTTLE control dials. Releasing the dials engages the Still mode.
- Normal audio can be monitored during search by selecting "NORM" with the AUDIO MONITOR button.
- With tapes not containing Hi-Fi audio recordings, first press the TV MONITOR/SWAP button, then press the AUDIO MONITOR button to select "NORM".

4 Press the IN button at the edit-in point.
- The edit-in point has now been stored into memory.
- Set for fade-in, if required. (See page 14.)

5 Search for the edit-out point.

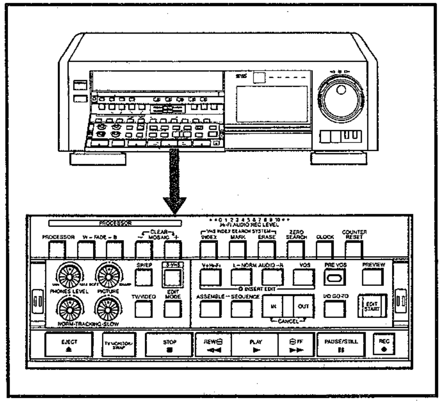
6 Press the OUT button at the edit-out point.
- The edit-out point has now been stored into memory.
- Set for fade-out, if necessary. (See page 14.)

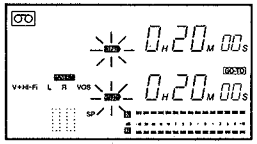
PLAYER (HR-S10000U)

7 Play back the tape and search for the edit-in point.
- Releasing the JOG/SHUTTLE dials engages the Still mode.

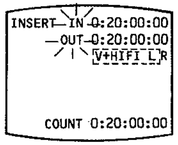
RECORDER

8 Press the EDIT START button.
- Insert editing will start.
- After completion of an edit, both the player and the recorder enter the Still mode.
- The picture being monitored may become distorted at the edit-in and edit-out points. This has no effect on the recorded tape.





DISPLAY PANEL



ON-SCREEN

SEMI-AUTOMATIC INSERT EDITING (WITH EDIT CTL OR PAUSE CONNECTION)

With EDIT CTL connection

By specifying an edit-in point only, insert editing can be performed automatically. This technique is possible when two HR-S10000Us are used.

RECORDER (HR-S10000U)

1 Select the signal(s) to be inserted.

2 Play back the tape and engage the Still mode near the beginning of the segment to be replaced.

3 Determine the edit-in point using the JOG/SHUTTLE control dials. Releasing the dials engages the Still mode.

4 Press the IN button at the edit-in point.
- The edit-in point has now been stored into memory.
- Set for fade-in, if required. (See page 14.)

PLAYER (HR-S10000U)

5 Play back the tape and engage the Still mode at the edit-in point.

RECORDER (HR-S10000U)

6 Press the EDIT START button.
- Insert editing will start.

7 Press the OUT button where the insert should stop.
- After completion of an edit, both the player and the recorder enter the Still mode.
- To continue another insert edit directly after the previous one, simply press the IN button after completion of one edit. Then search for the edit-in point on the source tape with the JOG/SHUTTLE dials and press the recorder's EDIT START button. To stop the insert, press the OUT button.

With PAUSE connection

By specifying an edit-out point, insert editing can be performed automatically. This technique is possible when the HR-S10000U is used as the recorder and connected to another VCR via that VCR's REMOTE PAUSE connector.

RECORDER (HR-S10000U)

1 Play back the tape and press the COUNTER RESET button at end of the segment to be replaced.

2 Search for the beginning of the segment to be replaced.
- Use the JOG/SHUTTLE dials. Releasing the dails engages the Still mode.

3 While pressing the PAUSE/STILL button, select the signal(s) to be inserted.
- This also engages the Insert Standby mode in which the input signal can be monitored. "INST PAUSE" and the selected signals are displayed on the screen and the corresponding indications appear on the display panel.
- Any combination of signals can be selected except V + Hi-Fi and VOS. To select more than one signal, there is no need to press the PAUSE/STILL button again.

PLAYER

4 Play back the tape and search for the edit-in point.

5 Engage the Still mode at the edit-in point.

RECORDER (HR-S10000U)

6 Press the EDIT START button.
- Insert editing will start.
- After completion of an edit, both the player and the recorder enter the Still mode.

Notes for "AUTOMATIC and SEMI-AUTOMATIC INSERT EDITING":
- To cancel the edit data, press the IN and OUT buttons simultaneously.
- With insert editing, the memorized edit points are automatically cleared after completion of an edit.
- Do not operate the JOG/SHUTTLE dials or any other button while automatic editing is in progress.
- Since insert editing erases the previous recording, it is recommended that you rehearse edits before actual recording. (See page 14, "Preview Function".)
- Inserting signals on a tape with intermittently missing control pulses will result in flaws such as distortion at edit-out points or result in an edit shorter than intended.
- When the PAUSE insert editing technique is to be used with two HR-S10000Us, leave their EDIT CTL connectors open.

MANUAL INSERT EDITING

With this technique, the signal(s) to be inserted can be switched even during editing. Since manual insert editing does not require either EDIT CTL or PAUSE connection, any VCR can be used as a source player.

RECORDER (HR-S10000U)

1. Play back the tape and press the COUNTER RESET button at the end of the segment to be replaced.
2. Search for the beginning of the segment to be replaced.
   - Use the JOG/SHUTTLE dials. Releasing the dials engages the Still mode.
3. While pressing the PAUSE/STILL button, select the signal(s) to be inserted.
   - This also engages the Insert Standby mode in which the input signal can be monitored. "INST PAUSE" and the selected signals are displayed on the screen, and the corresponding indications appear on the display panel.
   - Any combination of signals can be selected except V + Hi-Fi and VOS. To select more than one signal, there is no need to press the PAUSE/STILL button again.

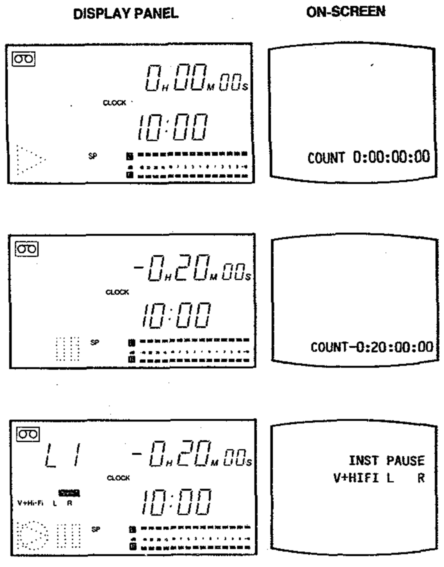
PLAYER

4. Play back the tape.

RECORDER (HR-S10000U)

5. While monitoring the playback picture (use the EE monitor function), press the PLAY button when the desired scene is reached on the player.
   - Insert editing will start.
   - While editing is in progress, selection of the insert signals can be changed at any time.
   - After completion of an edit at the counter reading of "0H 00M 00S", the recorder enters the Play mode.

Note:
- If the player has been set to the Still mode at the edit-in point, always be sure to start the player first, and then press the recorder's PLAY button. This will produce better results with no missing signals.



VOS (VIDEO-ON-SOUND) EDITING

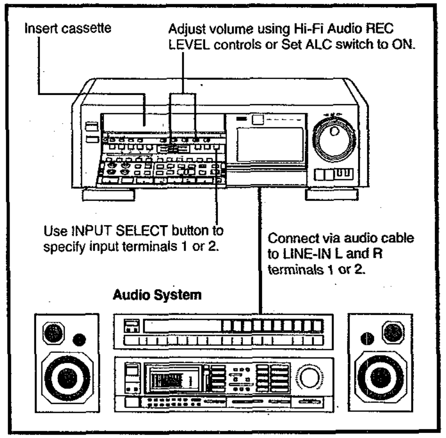
VOS (Video-On-Sound) editing permits independent editing of video and Hi-Fi audio signals. Recording Hi-Fi audio signals first in the Pre-VOS mode makes it possible to insert new video signals later. This lets you record a basic soundtrack, then add the images to match.

Pre-VOS audio recording

1. Put the recorder in the Record-Pause mode.
2. Operate the audio source machine.
3. Press the PRE VOS button.
   - "VOS" will blink on the display panel.
4. Press the PLAY button to start recording.
   - Both Hi-Fi and normal audio signals will be recorded while only black-level signals are recorded on the video track.
   - The resulting tape can be used for VOS editing.

VOS editing

Any one of the insert editing techniques can be used depending on the connection. Follow the applicable insert editing procedure. When selecting signal(s) to be inserted, press the INSERT EDIT VOS button. Normal audio (NORM AUDIO L or R, or both) can also be inserted together with the video signal. But do not press the INSERT EDIT V + Hi-Fi button, as this will eliminate the soundtrack recorded in the Pre-VOS mode.


Insert cassette

Adjust volume using Hi-Fi Audio REC LEVEL controls or Set ALC switch to ON.

Use INPUT SELECT button to specify input terminals 1 or 2.

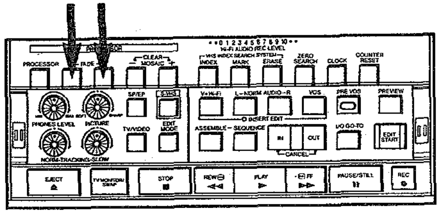
Connect via audio cable to LINE-IN L and R terminals 1 or 2.

Audio System

ADDITIONAL FACILITIES AVAILABLE WITH AUTOMATIC EDITING

PROGRAMMABLE FADES

By programming required fades when edit-in or edit-out points are stored into memory, each programmed edit will automatically fade in or out.



1. Press the PROCESSOR button.
   - The PROCESSOR indicator will light.
2. After pressing the IN or OUT button in the auto assemble or insert editing procedure, press the B FADE button for black fade or W FADE button for white fade.
   - The selected fade mode will be displayed on the screen. (No indication will appear on the display panel.)
3. When programmed edits are being executed by pressing the EDIT START button later, black or white fades will be performed as preprogrammed.
   - Fade-in will start at the edit-in point and be completed in about 3 seconds.
   - Fade-out will start about 3 seconds before the edit-out point and be completed at the edit-out point.
   - The edit-out point must be specified at a point more than 10 seconds away from the edit-in point when programmable fades are applied.

Note:
- When a programmed fade is being executed, the PROCESSOR indicator lights. After editing operation, press the PROCESSOR button to OFF.

PREVIEW FUNCTION

After specifying edit-in and edit-out points, the resulting edit can be checked in advance without being actually recorded. This technique is possible only with EDIT CTL connection.
For this purpose, press the PREVIEW button, instead of EDIT START.
- Preview editing will start. Check the timing of edits on the monitor.
- If everything is OK, then press the EDIT START button. Actual editing will start.

Preview in assemble editing
The first programmed edit will be performed for a segment from about 5 seconds before the edit-in point to about 4 seconds after the edit-in point without being recorded. If programmed data is OK, press the EDIT START button to execute the program. (Preview is possible for only the first edit-in point, regardless of the number of assemble edit entries you make.)

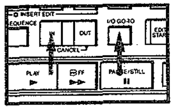
Preview in insert editing
A programmed edit will be performed for a segment from about 5 seconds before the edit-in point to about 1 second after the edit-out point without being recorded. If programmed data is OK, press the EDIT START button. When only the edit-in point has been specified, preview is performed only for the edit-in point as is with assemble editing.

Notes:
- Some picture distortion may occur during preview at edit points. This will not occur during actual recording.
- After preview, do not press the COUNTER RESET button. Specified edit points will be dislocated.

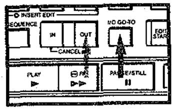
IN/OUT GO-TO FUNCTION

This function saves time if changes of edit data are required. After specifying edit-in or out points, they can be located with a single operation.

- To locate an edit-in point, press the IN button while pressing the I/O GO-TO button.



- To locate an edit-out point, press the OUT button while pressing the I/O GO-TO button.

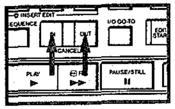


CHANGING SPECIFIED EDIT POINTS

In the process of programming edit points in assemble or insert editing, if changes are required, proceed as follows.

To change both edit-in and out points:

1. Press both the IN and OUT buttons simultaneously.
   - This cancels the specified edit points.
   - In assemble editing, be sure to select the corresponding sequence number first by pressing the SEQUENCE button.



2. Locate a new edit-in point and press the IN button.
3. Locate a new edit-out point and press the OUT button.

To change the edit-in point only:
Locate a new edit-in point and press the IN button.
- The edit-in point must be positioned before the edit-out point.

To change the edit-out point only:
Locate a new edit-out point and press the OUT button.
- The edit-out point must be positioned after the edit-in point.

CONVENIENT EDITING FUNCTIONS

VARIABLE FRAME RECORDING

Frame recording stops recording automatically after a selected number of frames. By shooting with a connected video camera the same inanimate subject repeatedly with slight variations each time, animation effects can be created. This facility is also useful when recording titles.
Or, when editing a lengthy recording of the same scene, the edited tape can give a time-lapse effect by the frame recording technique being applied repeatedly.

Preparation

- Connect a video camera or a playback deck to the LINE IN 1 or 2 connector(s). Also make PAUSE connection.
- Select the correct input with the INPUT SELECT button.
- Power on the camera and the recorder.

1. Put the HR-S10000U in the Record-Pause mode.
2. Press the FRAME REC button.
   - "7 FRAME" will appear on the display panel, showing the initial setting of the number of frames.
3. To change the number of frames, turn the JOG dial.
   - The setting can be varied from 3 to 33 frames in 2-frame steps.
   - 29 or 31 frames roughly correspond to a one-second recording time.
4. Press the PLAY button to start recording.
   - Pressing the camera's start/stop trigger also starts recording (depending on the camera model).
   - After the selected number of frames has been recorded, the recorder automatically enters the Record-Pause mode.
   - To stop frame recording midway, press the STOP button.

AV RECORD MUTING

AV record muting records only control pulses without recording video and audio signals. Use this facility to make leader sections or insert blank sections between two different programs.

1. Put the recorder in the Record-Pause mode.
2. Press the REC MUTE button.
   - While the button is being pressed, the tape runs and the recorded signals are erased.
3. Releasing the REC MUTE button engages the Record-Pause mode.

HIGH-SPEED ERASE

Recorded tapes can be erased at a speed 11 times normal.

1. Load a recorded cassette.
   - Cassettes with safety tab removed cannot be erased.
2. Play back the tape and engage the Record-Pause mode at a point from which the tape is to be erased.
3. Press the two HIGH SPEED ERASE buttons simultaneously.
   - For the first 8 seconds, erasing takes place at normal speed, and then changes to 11 times normal.
   - The tape counter does not function during erasing.
   - To stop erasing, press the STOP button.
   - When the end of the tape is reached, the recorder rewinds the tape automatically and enters the Stop mode at the beginning of the tape.

FRAMING SERVO

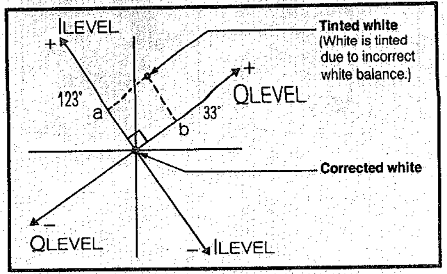
With the HR-S10000U being used as the recorder, the framing servo system can be selected depending on the input signal's sync accuracy.

Settings of the FRAME SERVO switch:

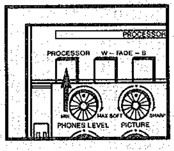
AUTO: Normally set to this position.
OFF: When tapes containing random-interlaced or low S/N video signals are used, set to OFF.
ON: When tapes with correctly recorded sync signals are used, set to ON.

COLOR PROCESSOR FUNCTIONS

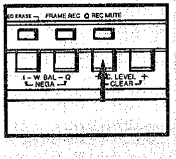
With the HR-S10000U's built-in I/Q dual-axis color processor, the color signal is processed on two channels, I and Q, as specified by the FCC for modulation at the transmitter. The I and Q signals have a phase difference of 90°. The I signal contains colors ranging between orange and cyan, distributed along an axis called the I-axis; the higher the level, the closer to orange, and the lower the level, the closer to cyan. The Q signal, ranging between purple and yellow-green, is distributed along the Q-axis perpendicular to the I-axis. By controlling the level of each axis independently, any degree of white balance error can be corrected and any color variation can be created.



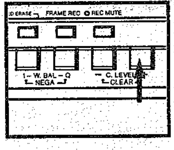
COLOR LEVEL ADJUSTMENT



1. Press the PROCESSOR button.
   - The PROCESSOR LED lights.



2. To decrease the color intensity (when the color is too strong), press the C.LEVEL "–" button.
   To increase the color intensity (when the color is too weak), press the C.LEVEL "+" button.



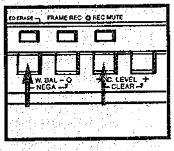
3. To go back to the original color intensity, press both the "–" and "+" buttons simultaneously. This also cancels the adjusted white balance setting.

Notes:

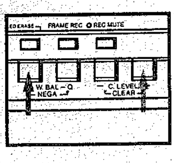
- Correction is possible by ±70%.
- Holding the button depressed changes the color intensity continuously in the corresponding direction to a certain level beyond which the limiter circuit prevents adjustment.

WHITE BALANCE ADJUSTMENT

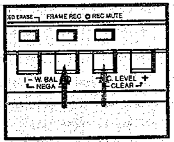
White balance can be adjusted using both the C.LEVEL and W.BAL buttons in the Processor mode.



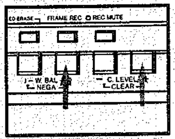
- If the color is reddish, press the C.LEVEL "–" button while pressing the W.BAL-I button.



- If the color is bluish, press the C.LEVEL "+" button while pressing the W.BAL-I button.



- If the color is magenta, press the C.LEVEL "–" button while pressing the W.BAL-Q button.



- If the color is yellowish or greenish, press the C.LEVEL "+" button while pressing the W.BAL-Q button.

Note:

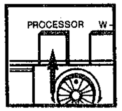
- To cancel the adjusted white balance setting, press the C.LEVEL "–" and "+" buttons simultaneously. This also cancels the adjusted color level setting.

Notes for "COLOR LEVEL and WHITE BALANCE ADJUSTMENT":

- It is not possible to apply color correction to black-and-white signals which do not contain color burst signals.
- Be sure to disengage the Processor mode when not using color processor functions.

SPECIAL COLOR PROCESSOR EFFECTS

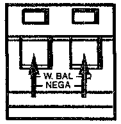
NEGATIVE/POSITIVE IMAGE REVERSAL

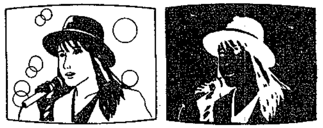


Ordinary color pictures can easily be changed to "negative" images similar to those on photo film.

1. Engage the Processor mode.
2. Press the W.BAL-I and W.BAL-Q buttons simultaneously.

- To cancel the negative mode, press both buttons simultaneously again.



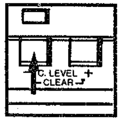


MONOCHROME EFFECT

By reducing the color level, any color picture can easily be changed to a monochrome picture.

1. Engage the Processor mode.
2. Hold the C.LEVEL "–" button depressed until the picture turns monochrome.

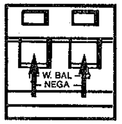
- To cancel the monochrome effect, press the C.LEVEL "–" and "+" buttons simultaneously.

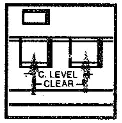


MONOTONE EFFECT

A monotone effect is available in any color by adding a color to the monochrome picture.

1. Obtain a monochrome picture as described above.
2. While pressing either the W.BAL-I or W.BAL-Q button, set a desired color by pressing either the C.LEVEL "–" or "+" button.





VARIABLE MOSAIC EFFECT

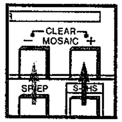
The picture information is digitally processed to produce a mosaic effect of different square sizes.

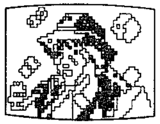
1. Engage the Processor mode.
2. Hold the MOSAIC "+" button pressed until the mosaic effect appears.
3. Adjust the square size with either the MOSAIC "–" or "+" button.

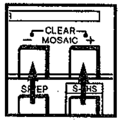
- To cancel the Mosaic mode, press the two MOSAIC buttons simultaneously, or hold the "–" button depressed until the mosaic effect disappears.

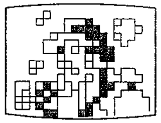
Note:

- A mosaic effect with continuously changing square sizes can be recorded by holding either button depressed during recording. This can produce a mosaic fade-in/out effect.



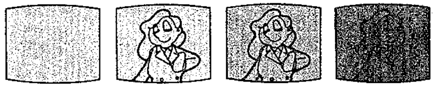




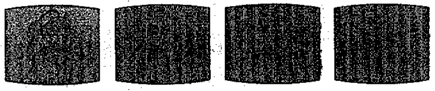


BLACK AND WHITE FADER

Both black and white fades are possible. Normal audio always fades in sync with video. Hi-Fi audio fades with video when the ALC switch is set to OFF for manual recording level control.



Fade-in from white →



Fade-out to black →

Fade-in

1. Engage the Processor mode.
2. Engage the Record-Pause mode.
3. For white fade-in, start recording by pressing the W. FADE button.
   For black fade-in, start recording by pressing the B. FADE button.
   - A white or black screen will be recorded automatically as the picture fades in.
   - If the FADE button is kept depressed, the tape continues to run and record the white or black screen until the button is released, then the picture automatically fades in.

Fade-out

1. For white fade-out, press the W. FADE button during recording.
   For black fade-out, press the B. FADE button during recording.
2. Fade-out will be completed in about 3 seconds, and the VCR will automatically enter the Record-Pause mode.
   - If the FADE button is kept depressed, the tape continues to run and record the white or black screen until the button is released. Then the VCR automatically enters the Record-Pause mode.

ADDITIONAL INFORMATION ON COLOR PROCESSOR FUNCTIONS

SPLIT-SCREEN CHECK MODE

The split-screen output allows on-screen comparison of the picture before and after color processing.

- Press the SPLIT button in the Processor mode. The output will change to a split-screen picture; the left half shows a picture before correction, and the right half, after correction.
- To cancel the split-screen output, press the SPLIT button.

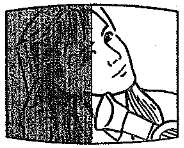
Effects that can be checked on the split screen:
1. Color level
2. White balance
3. Monochrome effect
4. Monotone effect

Effects that cannot be checked on the split screen:
1. Mosaic
2. Fade
3. Nega/posi reversal

Note:

- Before actual recording, be sure to cancel the split-screen output, otherwise it will be recorded as split.

Split-screen



Before correction

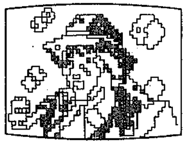
After correction

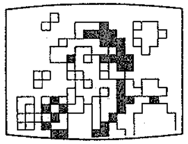
COMBINATION OF PROCESSOR EFFECTS

- All processor effects can be used in any combination.
  1. Color level
  2. White balance
  3. Monochrome effect
  4. Monotone effect
  5. Mosaic
  6. Fade
  7. Nega/posi reversal

Notes:

- Processor effects are available for recording and playback.
- Applying processor effects to inferior signals (with sync flaws or excessive noise) may produce picture distortion.





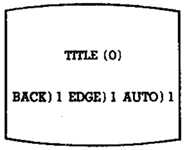
CHARACTER GENERATOR

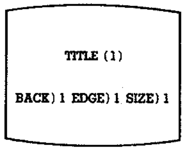
The HR-S10000U incorporates a character generator with 8-page memory which allows insertion of 8 different titles during editing or recording.

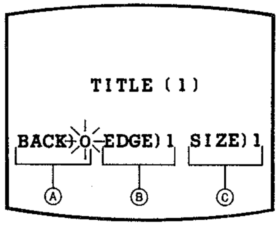
AVAILABLE FUNCTIONS

Title pages

There are 9 title pages, page 0 and pages 1 through 8. Page 0 is for auto-titling of timer-recorded programs (See page 14 of VOL. 2). Use pages 1 through 8 for composing titles. To call up a title page, press the TITLE button.



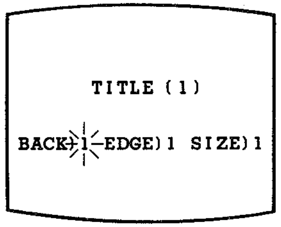




Background colors Ⓐ

Eight different colors in addition to gray can be selected. Titles can also be superimposed on recorded pictures. To select the color or superimpose mode, turn the JOG dial while the number for "BACK" is blinking on the screen.

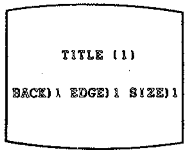
0. Superimpose
1. Light magenta
2. Marine blue
3. Light blue
4. Green
5. Yellow ocher
6. Purple
7. Sky blue
8. Lime green
9. Gray



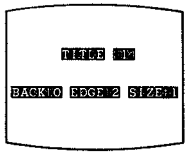
Character styles Ⓑ

Three different styles can be selected; edged, solid with frame, and solid without frame. To select the style, turn the JOG dial while the number for "EDGE" is blinking.

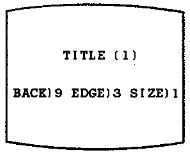
1. Edged



2. Solid with frame



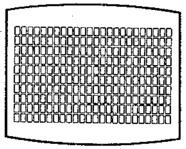
3. Solid without frame



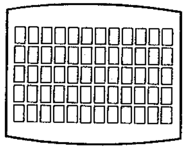
Character sizes Ⓒ

Four character sizes can be selected. To select the character size, turn the JOG dial while the number for "SIZE" is blinking.

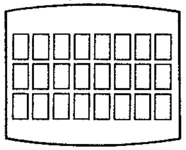
1. 24 characters x 10 lines



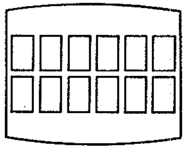
2. 12 characters x 5 lines



3. 8 characters x 3 lines



4. 6 characters x 2 lines



Available characters

62 Characters are available including alphabet (upper case), numerals and symbols. The title can be composed by selecting a character with the JOG dial and moving the cursor with the SHUTTLE ring.

NEXT ⟶

A	B	C	D	E	F	G	H	I	J	K	L	M	N
O	P	Q	R	S	T	U	V	W	X	Y	Z	0	1
2	3	4	5	6	7	8	9	–	:	/	.	,	'
[	]	(	)	!	?	|	–	+	*	=	#	▣	▣
~	&	▶	▶▶	◀◀	‖								

⟵ BACK

COMPOSING TITLES

1. Press the TITLE button. To advance to the desired title page, press the same button.
   - If the INPUT SELECT button is set to L1, S1, L2, or S2 with no input signal, the background color in the Title Set mode is blue.
2. Select the desired background color with the JOG dial.
3. Proceed to the next item by turning the SHUTTLE ring.
4. Select the character style with the JOG dial.
5. Proceed to the next item with the SHUTTLE ring.
6. Select the character size with the JOG dial.
7. Turn the SHUTTLE ring clockwise, and you are ready to compose a title with the cursor indicating the position for character entry.
   - To return to the Title Set mode, press the TITLE button.
8. Compose a title with the JOG/SHUTTLE controls.
   - Select a character with the JOG dial.
   - Move the cursor with the SHUTTLE ring.
   - To return to a position which requires correction, turn the SHUTTLE ring counterclockwise to move the cursor and press the CANCEL button. Holding the CANCEL button pressed erases characters in succession.
9. To compose another title, press the TITLE button and repeat steps 2 through 8.
   - When an already-composed page is selected, the Title Set mode is skipped and the composed title is directly called up.

RECORDING COMPOSED TITLES WHILE EDITING

1. Select the title to be recorded by pressing the TITLE button in the Record mode.
   - The selected title will blink on the screen.
2. When the scene where the title is to be recorded is reached, press the TITLE REC button.
   - The title will stop blinking and be recorded.
3. To stop recording of the title, press the TITLE REC button again.
   - The title will start blinking.

INSERTING COMPOSED TITLES ON AN ALREADY-RECORDED TAPE

Composed titles can be inserted to replace segments of already-recorded scenes by simply following the Manual Insert Editing technique.

1. Play back the tape and press the COUNTER RESET button at the point where you want the inserted title to end.
2. Using the JOG/SHUTTLE dials, search for the point where you want the title to begin.
3. While pressing the PAUSE/STILL button, press the INSERT EDIT V + Hi-Fi button. The Insert Standby mode is engaged.
4. Select the composed title to be inserted by pressing the TITLE button, then press the TITLE REC button.
5. Press the PLAY button.
   - The title insert starts.
   - After completion of the title insert at the counter reading of "0H 00M 00s", the recorder enters the Play mode.

Note:
- Title superimposition is not possible with this technique. The recorded information is replaced with the title having background color selected from among the different colors, 1 — 9.

CHANGING COMPOSED TITLES

1. Press the TITLE button to call up the page which requires correction.
2. Turn the SHUTTLE ring counterclockwise, and you will get the Title Set mode screen.
3. Change the data as required.

ERASING THE ENTIRE PAGE

1. Press the TITLE button to call up the page to be erased.
2. Press the CANCEL button.

SECTION 1
DISASSEMBLY AND MECHANISM ADJUSTMENTS

1.1 DISASSEMBLY

1.1.1 External covers (See Fig. 1-1-1)

1. Top cover
1) Take out four screws Ⓐ from the side wood (L) and side wood (R) and remove them. And remove one screw Ⓑ from the rear side of the set.
2) Tilt up the rear end of the top cover in direction ①, then remove the top cover.

2. Front panel
1) Remove the top cover.
2) Carefully bend five hooks Ⓒ of the front panel assembly from the upper side and both rear sides of the chassis in order to disengage the hooks from the chassis.
3) Pull the front panel assembly toward direction ② to disengage three hooks Ⓓ of the front panel assembly from the bottom of the chassis, then remove the front panel assembly.

3. Bottom cover
1) Remove the top cover.
2) Take out eight screws Ⓔ and one screw Ⓕ from the bottom of the set, then remove the bottom cover.

4. Cassette housing assembly
1) Take out two screws Ⓖ and take out two screws Ⓗ from the chassis.
2) Pull the cassette housing assembly toward front to disengage the two claws Ⓙ.
3) Carefully tilt up the cassette housing assembly in direction ③ and disconnect connector Ⓚ, then remove the cassette housing assembly.

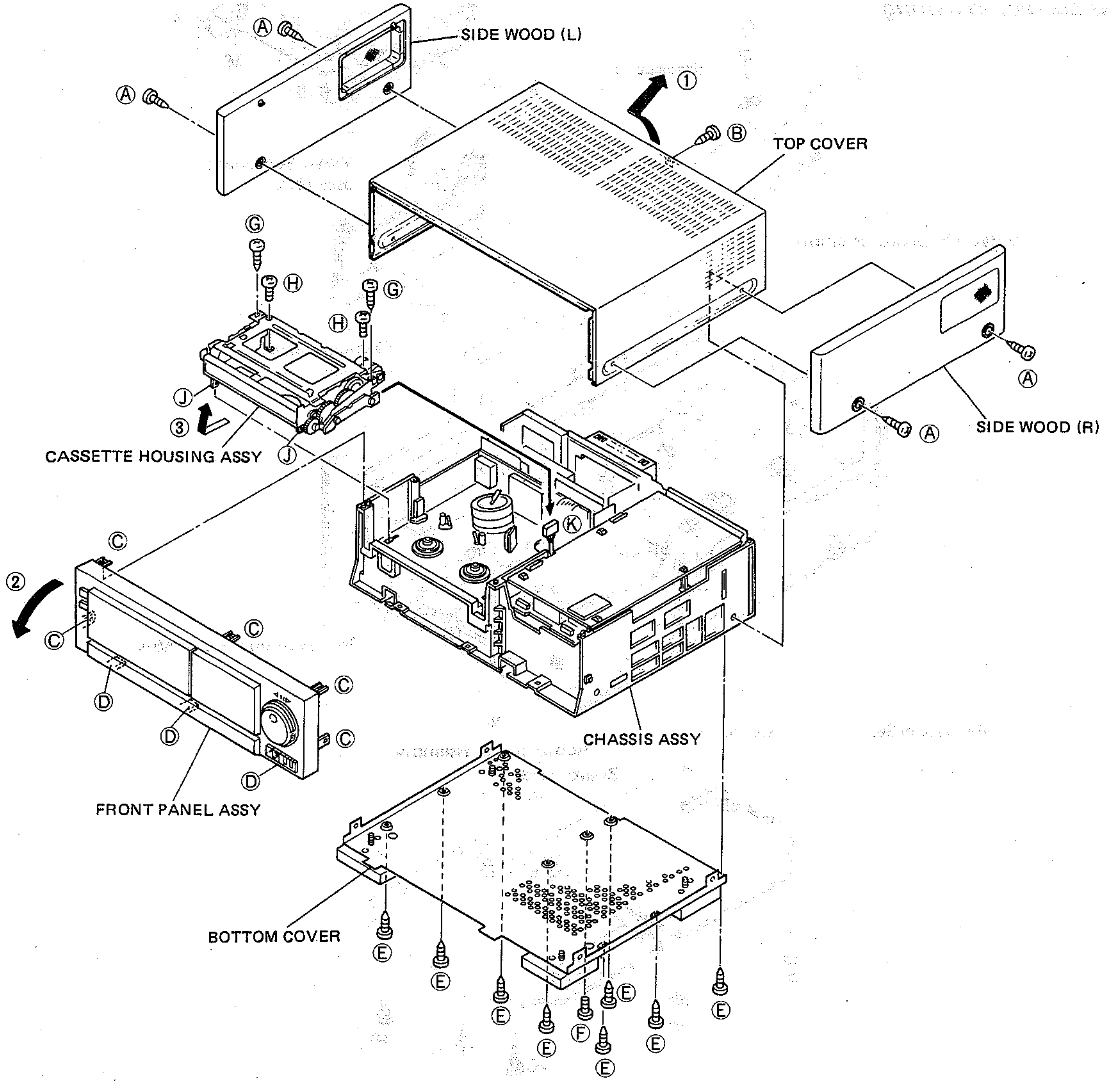


Fig. 1-1-1

1.1.2 Circuit boards (See Fig. 1-1-2)

1. Main and Video Sub board assemblies
1) Take out two screws Ⓛ and tilt up Main and Video Sub board assemblies in direction ④ untie it becomes right angle.
2) Separate the Video Sub board assembly from Main board assembly, tilt up two board holders Ⓜ in direction ⑤ , then remove the Video Sub board assembly toward direction ⑥ .

2. On Screen board assembly
1) Remove the Main and Video Sub board assemblies in above.
2) Take out four screws Ⓝ remove the On Screen board assembly with care do not brake the hook Ⓟ .

3. Terminal board assembly
1) Remove the Main and Video Sub board assemblies.
2) Tilt up the three gaps Ⓢ from lower edges of Terminal board assembly, then remove the Terminal board assembly.

NOTE: *Install the Terminal board assembly, make sure to install it to three gaps Ⓢ correctly, it cause Main and Video Sub board assemblies correct installing.*

4. Video RF board assembly
1) Take out one screw Ⓠ and remove the bracket (1).
2) Pull up along the gaps and remove the Video RF board assembly while careful around of wirings and volumes.

5. Mechacon/Servo and Audio board assemblies
1) Remove the bottom cover. (Refer to Sec. 1.1.1)
2) Take out five screws Ⓡ and remove the Mechacon/Servo and Audio board assemblies.
3) Remove the two board holders Ⓣ , separate the Mechacon/servo board assembly from the Audio board assembly.

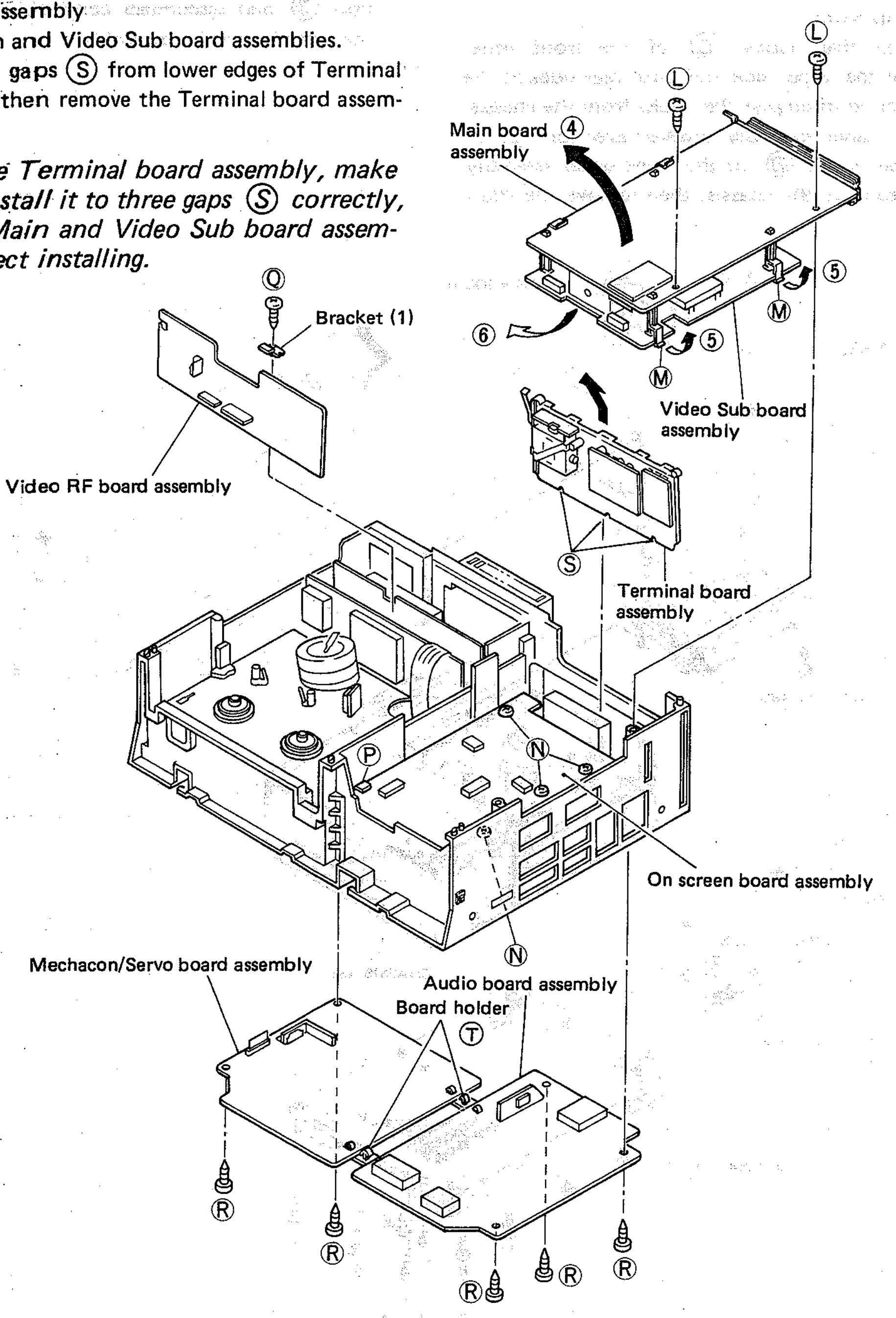

Ⓛ
Ⓛ
Main board ④
assembly
⑤
Ⓜ
⑥
⑤
Ⓜ
Video Sub board
assembly
Ⓠ
Bracket (1)
Video RF board assembly
Ⓢ
Terminal board
assembly
Ⓟ
Ⓝ
On screen board assembly
Ⓝ
Mechacon/Servo board assembly
Audio board assembly
Board holder
Ⓣ
Ⓡ
Ⓡ
Ⓡ
Ⓡ
Ⓡ

Fig. 1-1-2

1.1.3 Disconnecting the flat wire

In addition to the normally employed cap housing, in some applications, special types are used for such purposes as flat wire connection. This type is mainly used on the deck terminal board.
Among the special type housings are the PU58798 and PU59933 series. These clamp the ends of the cable wires.
See Fig. 1-1-3, -4 for methods of connecting and disconnecting the cables.

1. PU58798 series
   Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

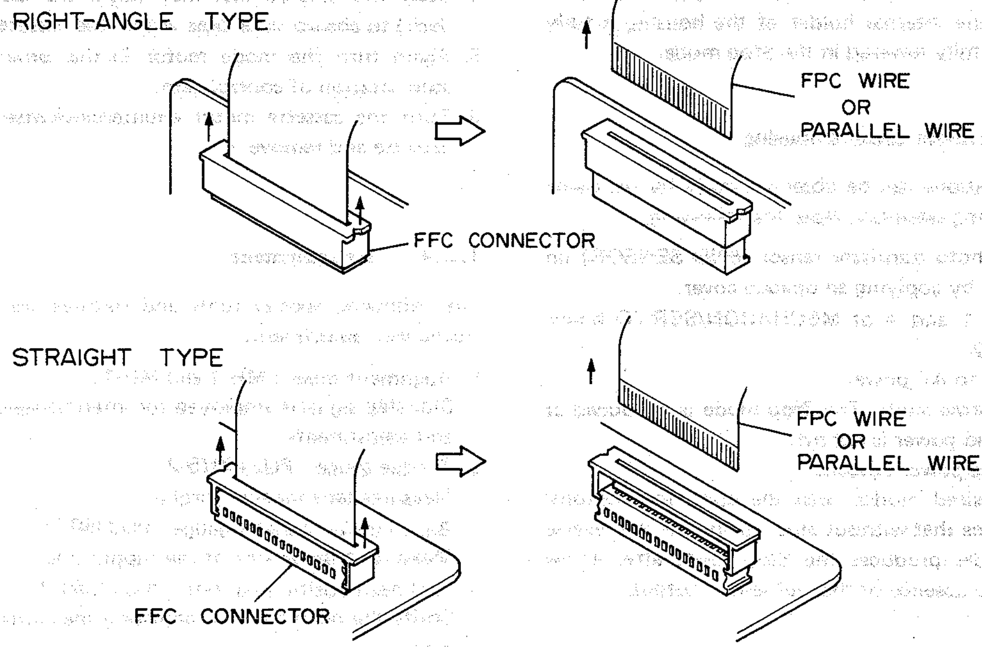

RIGHT-ANGLE TYPE
FPC WIRE OR PARALLEL WIRE
FFC CONNECTOR
STRAIGHT TYPE
FPC WIRE OR PARALLEL WIRE
FFC CONNECTOR

Fig. 1-1-3

2. PU59933 series
   With this type, release the clamp by pressing downward with the end of a flat blade screwdriver, as indicated below.

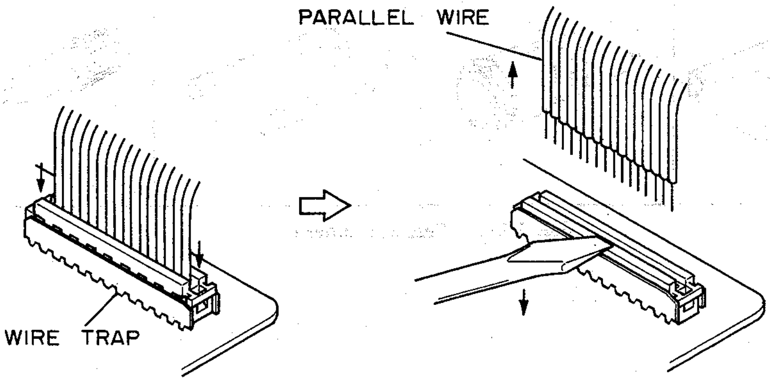

PARALLEL WIRE
WIRE TRAP

Fig. 1-1-4

Note: *Wire removal method is the same for sets using the new lock type housing in the future. Either press or pull the housing to remove.*

1.2 MECHANISM ADJUSTMENT

1.2.1 Precautions

1. Disconnect mainframe from AC power before soldering.
2. Avoid imparting stress to wires when disengaging connectors.
3. Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4. Use care not to damage tabs, claws, etc. during repairs.
5. Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.

1.2.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1. Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2. Connect pins 1 and 4 of MECHACON/SERVO board connector CN2.
3. Connect VCR to AC power.
4. The loading arms move. The Stop mode is produced at loading end and power is cut off.
5. Again press the power button.
6. Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

1.2.3 Manually removing cassette tape

In event of electrical system failure that prevents the tape from being unloaded, the tape can be removed manually by the following procedure. Refer to Fig. 1-3-1, -2 and -3.

1. Disconnect VCR from AC outlet.
2. Turn the mode motor pulley (from the bottom of the deck) by hand toward the drum motor assy.
3. Turn the mode motor pulley so that the control cam rotates clockwise. This retracts the pole base assembly to the unloading position.
4. Turn the take-up reel disk (from the bottom of the deck) to absorb slack tape within the cassette.
5. Again turn the mode motor in the same direction to stop rotation of control cam.
6. Turn the cassette motor counterclockwise to raise the cassette and remove it.

1.2.4 Test equipment

The following special tools and fixtures are required for mechanism adjustment.

1. Alignment tapes : MH-1 and MH-1L
   Stairstep signal is employed for interchangeability checks and adjustments.
2. Torque gauge : PUJ48075-2
   Measures tape take-up torque.
3. Back tension cassette gauge : PUJ48076-2
   Measures tape tension at the supply side.
4. A/C head positioning tool : PUJ47351-2
   Shifts the head base for adjusting the control head position.

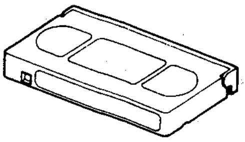
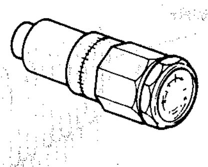
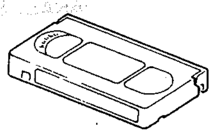
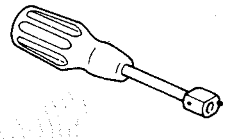
Alignment tapes 1	Torque gauge 2	Back tension cassette gauge 3	A/C head positioning tool 4
			

Fig. 1-2-1 Test equipment

1.3 MAIN MECHANISM PARTS

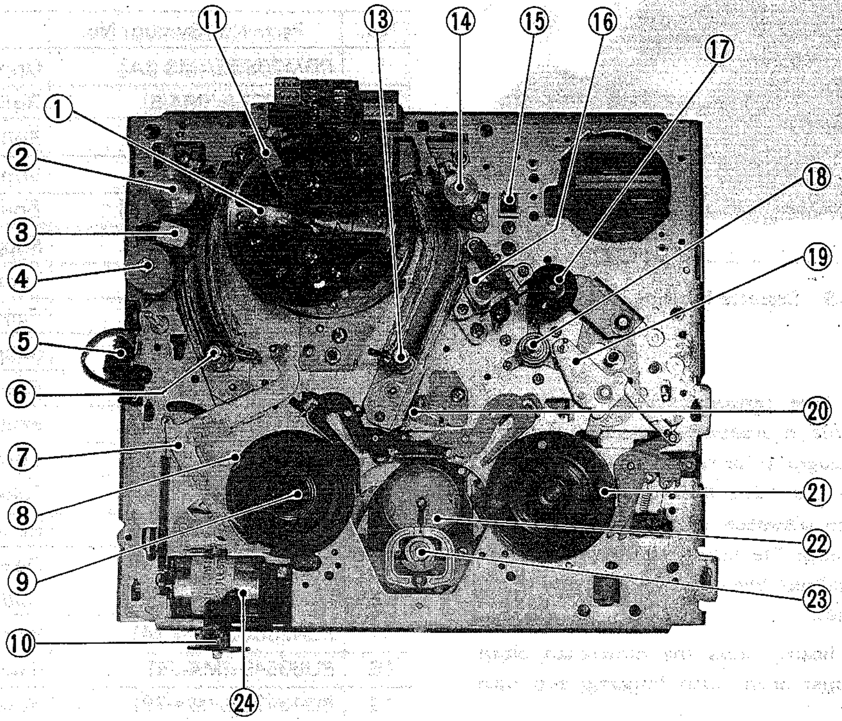

⑪
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Fig. 1-3-1 Top view of main-deck

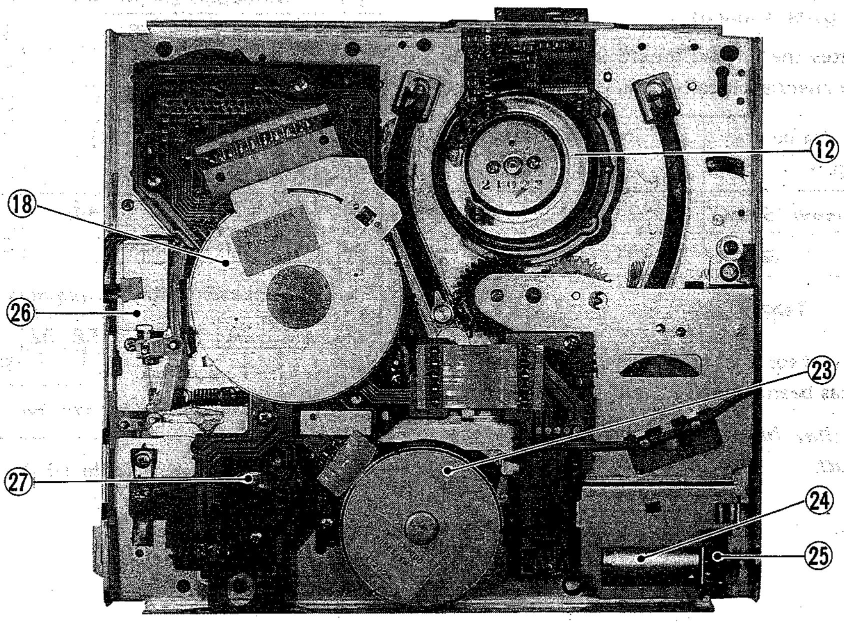


Fig. 1-3-2 Bottom view of main-deck

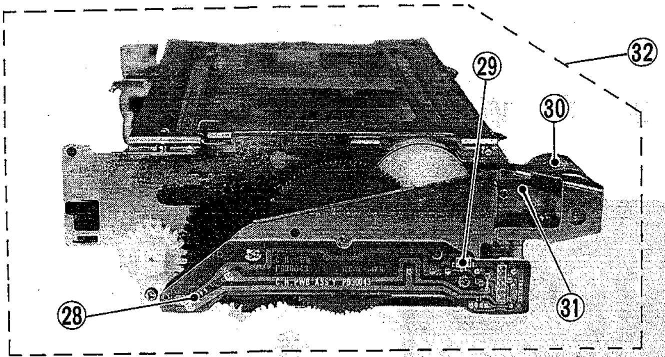


Fig. 1-3-3 Cassette housing

A. Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Heavy contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
  Do not use a vertical stroke, as this may damage the heads.

B. Lubrication

Oil and grease do not require periodic replenishing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).

1. Table 1-3-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part Name	Part number
Oil	Video Oil	YTU94027
Grease	Video Grease (Black)	MOS2-C
	〃 (blue)	KANTO-G-31 KAV

Table 1-3-1

2. Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: *Stir grease that has been stored for an extended period.*

C. Main mechanical parts

See Fig. 1-3-1, -2 and -3.

No.	Parts No./Symbol No.	Parts Name
1	PDM2083E/(M3-2A)	Upper drum assy
2	PQ43837A/(M4-5)	Roller assy
3	PU60646/(M4-3)	Full erase head
4	PQ41955/(M4-10)	Impedance roller
5	PN268R-NC/(54-Q1)	End sensor
6	PU60649/(M4-28)	Supply pole base assy
7	PQ43415A/(M4-1)	Tension arm assy
8	PQ43422A/(M4-2)	Tension band
9	PU60538-1-1/(M4-51)	Supply reel disk
10	PU58644-1-3/(53-S1)	Rec safety switch
11	PDM4015B/(M3-2D)	Brush
12	PDM2035U/(M3-2C)	Lower drum assy
13	PU60647/(M4-27)	Take-up pole base assy
14	PQ43837A/(M4-16)	Roller assy
15	PU60543/(M4-94)	Dew sensor
16	PU60540/(M4-22)	Audio/control head
17	PQ42006C/(M4-74)	Pinch roller arm assy
18	PU60549/(M4-34)	Capstan motor
19	PQ43436B/(M4-78)	Reverse arm assy
20	PU59925-1-1/(M4-89)	LED holder
21	PU60539-1-2/(M4-52)	Take-up reel disk
22	PU60559/(M4-45)	Idler arm
23	PU58636W/(M4-46)	Reel motor
24	PQ41996C/(M4-58)	Mode motor assy
25	PQM30003-20/(M4-63)	Mode motor belt
26	PU60537/(M4-38)	Solenoid
27	PU60541/(M4-92)	Slide switch
28	PU58879/(56-PHS1)	Cassette sensor
29	PN268R-NC/(56-Q1)	Start sensor
30	PQ42385C/(M3-41)	Cassette motor assy
31	PQM30003-19/(M3-43)	Cassette motor belt
32	PUS29142C/(M3-6)	Cassette housing assy

- Symbol interpretation example

M3 ⁝ 2A OR 56 ⁝ Q2
Ref. No. — Ref. No.
Exploded view symbol — Board No.

Table 1-3-2

D. Inspection and maintenance

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced at regular intervals.

E. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.

Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Symbol No.	Periodic servicing schedule (operation hours)								
			250	500	750	1000	1250	1500	1750	2000	3000
Tape Transport	Upper drum	M3-2A	★	★	☆	●	★	★	☆	●	●
	Audio/control head	M4-22	★	★	★	★	★	★	★	☆	●
	Pinch roller	M4-74	★	★	★	★	★	★	★	★	●
	Full erase head	M4-3	★	★	★	★	★	★	★	★	●
	Tension arm	M4-1	★	★	★	★	★	★	★	★	★
	Lower drum	M3-2C									
	Capstan (shaft)	M4-34									
	Reverse arm assy	M4-78									
	Take-up guide pole	M4-30									
	Supply slant pole	M4-28									
	Take-up slant pole	M4-27									
	Impedance roller	M4-10									
	Roller assy	M4-5, 14									
Drive	Capstan motor	M4-34								●	
	Reel motor	M4-46								●	
	Cassette motor	M3-41									●
	Mode motor	M4-58									●
	Supply reel disk	M4-51				△				△	●
	Take-up reel disk	M4-52				△				△	●
	Idler arm	M4-45				○				●	
	Cassette belt	M3-43				○				●	
	Mode motor belt	M4-63				○				●	
Others	Brush	M3-2D				○				○	○
	Tension band	M4-2				○				○	○

★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
No: Refer to Main mechanical parts

▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection (or Replacement if necessary)

Table 1-3-3 Approximate maintenance schedule

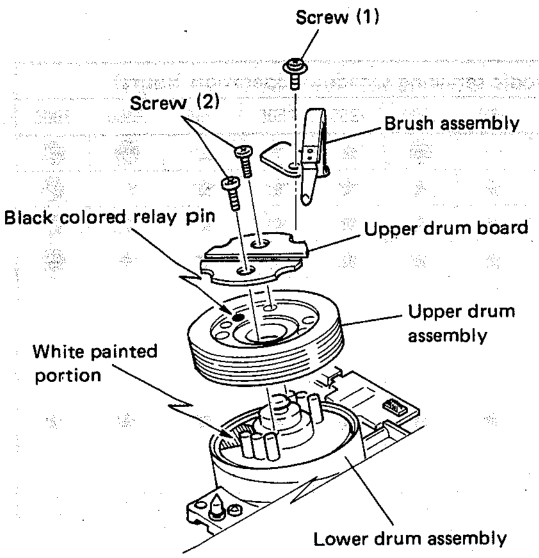
1.4 MAIN ASSEMBLY REPLACEMENT

<table>
<tr><th>No.</th><th>Item</th><th>Adjustment parts</th><th>Operating mode</th><th>Description</th></tr>
<tr><td>1</td><td>Upper drum assembly</td><td></td><td></td><td>

Note: *When installing the new upper durm, use care not to touch the video heads. If heads are soiled, clean with a soft, finely woven cotton cloth or chamois that has been moistened in alcohol. Hold lightly against the heads and turn the drum clockwise. By no means clean with a vertical stroke.*

</td></tr>
<tr><td></td><td colspan="3">

— Removal —



Screw (1)
Screw (2)
Brush assembly
Black colored relay pin
Upper drum board
Upper drum assembly
White painted portion
Lower drum assembly

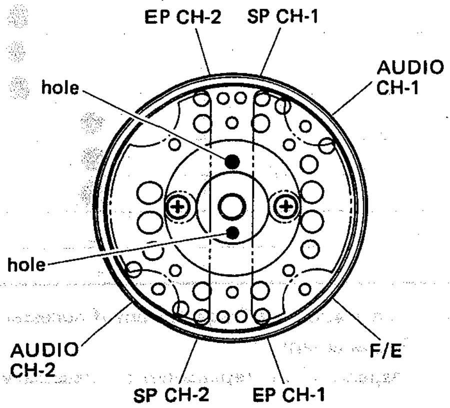
Fig. 1-4-1 Upper drum assembly

</td><td>

1) Refer to Fig. 1-4-1. Take out screw (1) and remove the brush assembly.
2) Use a desoldering tool or desoldering braid to unsolder the upper drum boards.
3) Take out two screws (2) and raise the upper drum to remove it together with the upper drum board. (If this drum is to be reinstalled, use care not to touch or damage the heads.)

</td></tr>
<tr><td></td><td colspan="3">

— Installation —



EP CH-2
SP CH-1
AUDIO CH-1
hole
hole
AUDIO CH-2
F/E
SP CH-2
EP CH-1

</td><td>

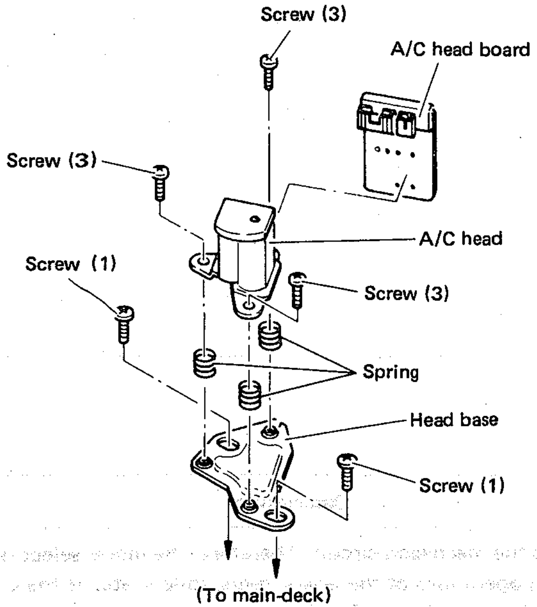
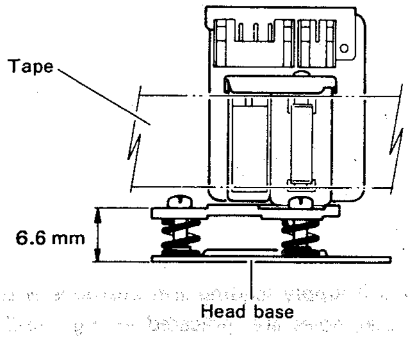
1) Refer to Fig. 1-4-1. Align the black relay pin of the new upper drum with the white marking of the lower drum.
2) Reinsert screws (2) and tighten them in a balanced manner.
3) Reinstall and solder the upper drum boards.
4) Clean the drum assemblies (see above note).
5) Reinstall the brush assembly and secure with screw (1).

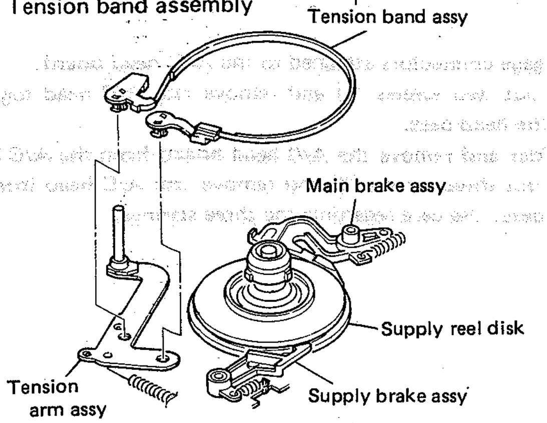
</td></tr>
<tr><td></td><td>— Checks and adjustments —</td><td></td><td></td><td>

After installing the upper drum, perform the following checks and adjustments (refer to appropriate Sections of this Manual).

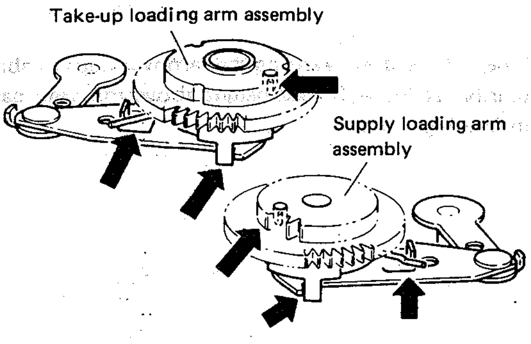
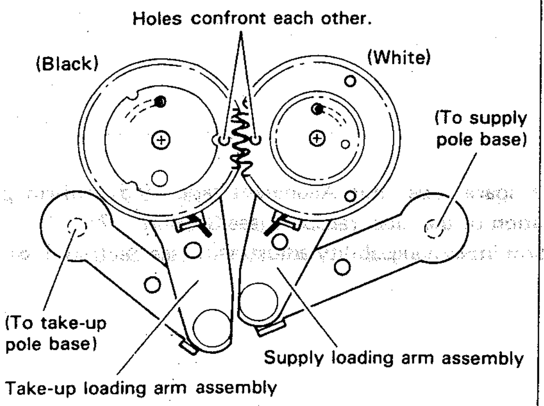
1) FM waveform
2) Servo circuit
3) Video circuit
4) FM audio circuit

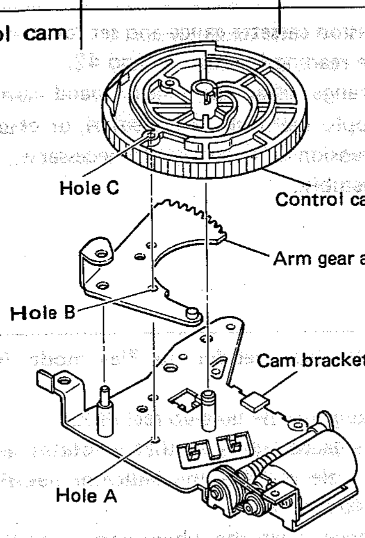
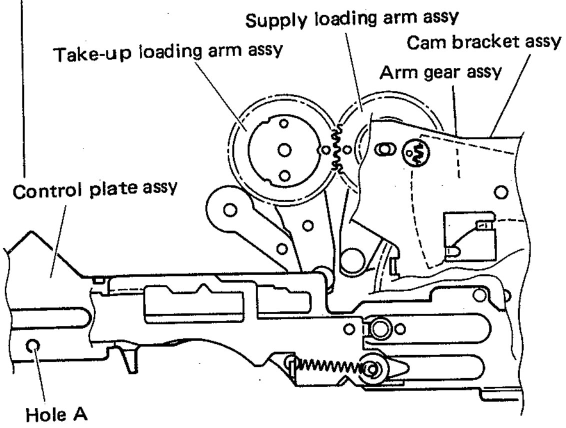
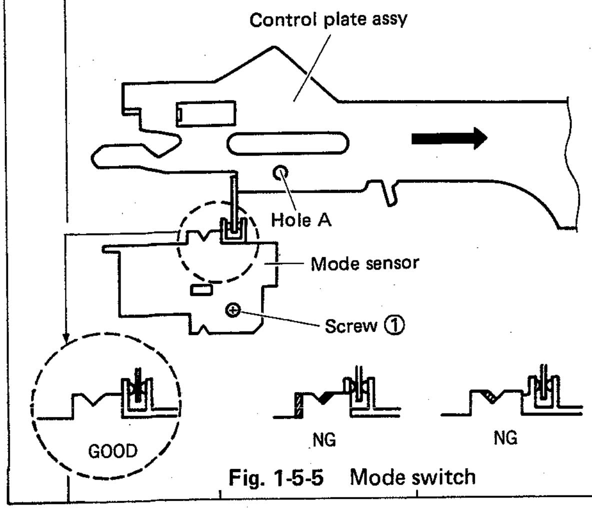
</td></tr>
</table>

No.	Item	Adjustment parts	Operating mode	Description
2	A/C head (Audio/Control head)			
	— Removal —  Screw (3) A/C head board Screw (3) A/C head Screw (1) Screw (3) Spring Head base Screw (1) (To main-deck) Fig. 1-4-2 A/C head			1) Disengage connectors attached to the A/C head board. 2) Take out two screws (1) and remove the A/C head together with the head base. 3) Unsolder and remove the A/C head board from the A/C head. 4) Take out three screws (3) and remove the A/C head from the head base. Use care regarding the three springs.
	— Installation —  Tape 6.6 mm Head base Fig. 1-4-3 A/C head height			1) Install the A/C head by reversing the removal steps of above. 2) Temporarily set the A/C head height above the head base for 6.6 mm (see Fig. 1-4-3).
	— Checks and adjustments —			1) Use a spare tape (not Alignment tape) and confirm proper operation of the tape transport (see Section 1.7). 2) Perform interchangeability adjustment (see Section 1.8).

No.	Item	Adjustment parts	Operating mode	Description
3	Tension band assembly  Tension band assy Main brake assy Supply reel disk Tension arm assy Supply brake assy **Fig. 1-4-4** Tension band assembly			1) Disengage the tension band from the tension arm, then replace the tension band. 2) Reassemble the tension band by reversing the above steps.

1.5 ASSEMBLY PROCEDURE OF MECHANISM

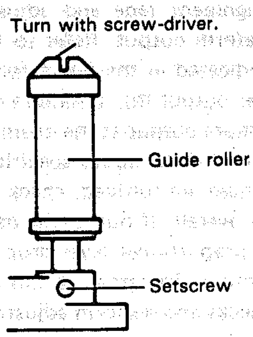
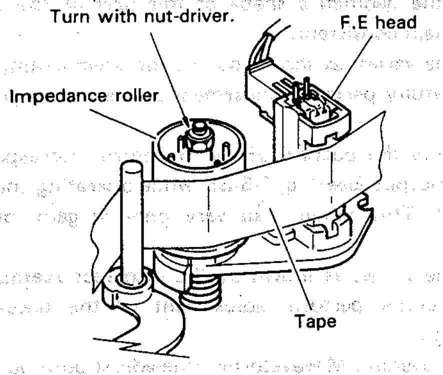
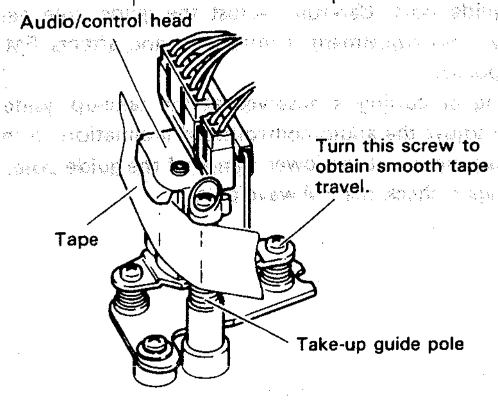
No.	Item	Adjustment parts	Operating mode	Description
	A close relationship exists between the mode select switch and the mechacon circuit. Therefore, the mode select switch and control arm engagement determines the overall mechanical operations of the levers, gears, rollers, etc. If these parts are not properly positioned, the video deck becomes stalled in the unloading or Stop mode.			
1	Loading arm assemblies  Take-up loading arm assembly Supply loading arm assembly **Fig. 1-5-1** Loading arm assembly (1)  Holes confront each other. (Black) (White) (To supply pole base) (To take-up pole base) Supply loading arm assembly Take-up loading arm assembly **Fig. 1-5-2** Loading arm assembly (2)			These assemblies are comprised of loading gears, torsion springs and loading arms. 1) Refer to Fig. 1-5-1 and install the loading arm assemblies correctly. 2) The take-up and supply loading arm positions with respect to the loading gear holes are indicated in Fig. 1-5-2. This configuration is important to allow shifting to the next operation.

No.	Item	Adjustment parts	Operating mode	Description
2	Control cam  Hole C Control cam Arm gear assy Hole B Cam bracket assy Hole A **Fig. 1-5-3** Control cam			**Note:** *Do not turn the control cam from this position for the next step.* 1) Set the arm gear assembly on the cam bracket assembly so that the hole of the arm gear assembly (hole B) overlaps the hole of the cam bracket assembly (hole A). 2) Install the control cam on the cam bracket assembly so that the hole of the control cam (hole C) overlaps the hole which is indicated in the step 1, as shown in Fig. 1-5-3.
3	Cam bracket assembly  Supply loading arm assy Take-up loading arm assy Cam bracket assy Arm gear assy Control plate assy Hole A **Fig. 1-5-4** Cam bracket assembly			1) Refer to Fig. 1-5-4 and press the plate assembly toward the right to overlap the indicated hole with that of the main deck (hole A). 2) Then install the cam bracket assembly. **Note:** *If the arm and loading gears do not mesh properly, use a jeweler's screwdriver or similar tool to engage the gear teeth while installing the cam bracket assembly.*
4	Mode switch position  Control plate assy Hole A Mode sensor Screw ① GOOD NG NG **Fig. 1-5-5** Mode switch			1) Engage the plate assembly and mode switch as shown in Fig. 1-5-5. Partially tighten screw (1) to where the switch can still be shifted for adjusting the position. 2) Press the plate assembly toward the right to where the holes are overlapped as in Fig. 1-5-4. Insert a jeweler's screwdriver into the holes to keep them aligned. 3) Shift the mode switch to align the V-notch as indicated in Fig. 1-5-5. Then tighten screw (1) to secure. 4) Remove the jeweler's screwdriver, then reinstall and solder the circuit board.

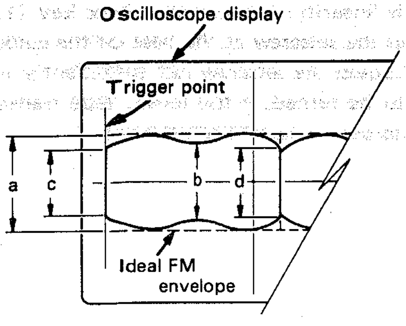
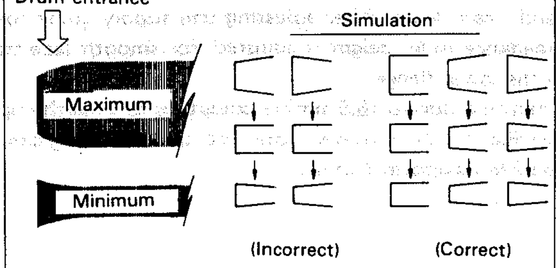
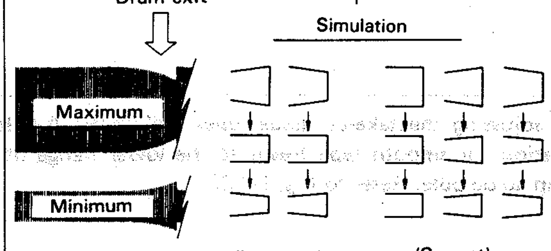
1.6 CONFIRMATION AND ADJUSTMENT

No.	Item	Adjustment parts	Operating mode	Description
1	Back tension			1) Use the back tension cassette gauge and set for the Play mode. 2) Check for a scale reading between 24 and 42. 3) If outside this range, clean the tension band contacting portions of the supply reel disk with alcohol, or check the condition of the tension arm spring. If necessary, replace the tension band assembly.
2	Take-up torque			1) Without a cassette tape, set for the Play mode (see Section 1.1). 2) Set the torque gauge on the take-up reel disk. 3) Grasp the torque gauge lightly so that it rotates and read the value when the scale matches the indicator needle. Confirm a value between 45 and 155. 4) If outside this range, clean the rubber portion of the idler arm with alcohol, or if necessary, check the reel motor drive circuit.

1.7 TAPE TRANSPORT CHECKS AND ADJUSTMENT PREPARATIONS

No.	Item	Adjustment parts	Operating mode	Description
	The tape transport system has been precision-adjusted at the factory and ordinarily does not require readjustment. However, adjustment may become necessary after long term usage or after replacing parts that affect the tape transport. The following steps mainly cover preparations for the interchangeability adjustments of Section 1.8			
1	Guide roller  Turn with screw-driver. Guide roller Setscrew Fig. 1-7-1 Guide roller			1) During interchangeability adjustments, the guide roller is turned with a flat-blade screwdriver to adjust its height and correct FM waveform linearity. Use a metric hex key (1.25 mm) to slightly loosen the setscrew at the base of the guide roller (see Fig. 1-7-1). Loosen the setscrew just sufficiently to allow the guide roller to be turned. If too loose, tape transport will be too unstable to permit correct adjustment.
2	Impedance roller  Turn with nut-driver. F.E head Impedance roller Tape Fig. 1-7-2 Impedance roller			1) This compensates for tape running stability between the cassette and head drum. After adjusting the supply guide roller, the impedance roller height is adjusted for smooth tape transport at the lower flange. 2) Use a metric nutdriver (5.5 mm) to adjust by turning the upper nut (see Fig. 1-7-2). However, note that excess turning can disturb the FM waveform stability.
3	A/C head (audio/control head)  Audio/control head Turn this screw to obtain smooth tape travel. Tape Take-up guide pole Fig. 1-7-3 A/C head			1) After adjusting the take-up guide roller, adjust the A/C head inclination for smooth tape travel at the lower flange of the take-up guide pole. Refer to Fig. 1-7-3.

1.8 INTERCHANGEABILITY CHECKS AND ADJUSTMENTS

No.	Item	Adjustment parts	Operating mode	Description
1	Before using costly Alignment tape, use a spare tape and confirm correct operation of the tape transport.			
	FM waveform $\frac{b}{a} \geq 0.7$, $\frac{c}{a} \geq 0.5$ and $\frac{d}{a} \geq 0.5$  Oscilloscope display Trigger point a c b d Ideal FM envelope Fig. 1-8-1 FM envelope  Drum entrance Simulation Maximum Minimum (Incorrect) (Correct) Fig. 1-8-2 Drum entrance  Drum exit Simulation Maximum Minimum (Incorrect) (Correct) Fig. 1-8-3 Drum exit			1) Connect oscilloscope to TP6 of the video RF board. Trigger the oscilloscope externally with the signal from the drum flipflope (D-FF or FF) testpoint. Set the trigger slope to minus (–). 2) Play the MH-1 Alignment tape and adjust the tracking for maximum FM waveform output. Refer to Fig. 1-8-1. Confirm the relationships indicated in the figure for maximum output (a), minimum center output (b), minimum output at the drum intake (c) and minimum output at the drum output (d). 3) Adjustment is required if the above specifications are not fulfilled. Even when these are fulfilled, check that the FM waveform varies linearly overall. If not, slight deviation in tracking will cause a large proportional level drop to result in noise appearing in the picture. Therefore, in this condition, proceed to the following checks and perform adjustments where necessary. 4) Operate the tracking adjustment between minimum and maximum outputs of the FM waveform. Observe the portion of the waveform corresponding to the drum intake (see Fig. 1-8-2). As the tracking is adjusted, although the gain may increase or decrease, the geometric shape of this part of the waveform should remain consistent. If the shape varies, as shown by the incorrect examples in the figure, carefully perform adjustment of the supply guide roller height. 5) Next observe the portion of the waveform corresponding to the drum output (see Fig. 1-8-3), while operating the tracking adjustment. This should also vary only in gain, but not in shape. If the shape varies, as shown by the incorrect examples in the figure, carefully perform adjustment of the take-up guide roller height. 6) Check the overall FM waveform. Fine-adjust both guide rollers so that variation is as minimum and linear as possible. 7) Observe the tape travel at the guide rollers and guide poles. Confirm absence of tape creasing or curling. Confirm that the tape properly rides at the lower flange of the supply guide pole. Carefully adjust the guide pole height if necessary. This adjustment is important and affects FM waveform response. If creasing or curling is observed at the take-up guide pole, carefully adjust the audio/control head inclination so that the tape rides properly at the lower flange of the guide pole. Finally, again check the FM waveform.

<table>
<tr><th>No.</th><th>Item</th><th>Adjustment parts</th><th>Operating mode</th><th>Description</th></tr>
<tr><td rowspan="2">2</td><td colspan="4">Proper adjustment of the A/C head position is important for ensuring adequate audio output and S/N. Severe misalignment can prevent control signal pick-up and cause servo instability. Precise adjustment is particularly important for models that include tape indexing and addressing features, since these rely on control signal coding for operation.
To observe the audio signal, connect an oscilloscope to the test point (AUDIO OUT) of the audio circuit, or directly to the audio output terminal. In some cases, monitoring the sound with headphones may be helpful.</td></tr>
<tr><td colspan="3">A/C head adjustments

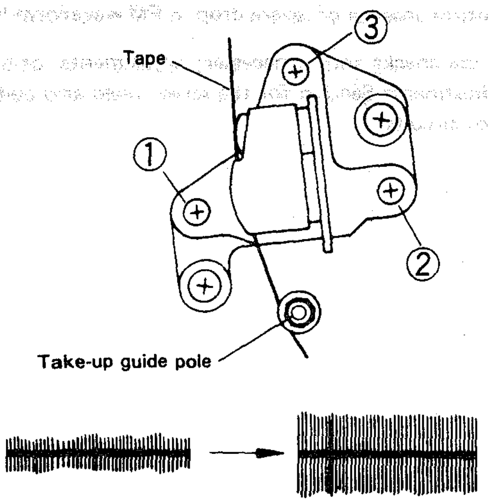



Fig. 1-8-4 A/C head</td><td>1) Connect CH-1 probe of the oscilloscope to the terminal (Lch AUDIO OUT) and CH-2 probe to the terminal (Rch AUDIO OUT) of the VIDEO MAIN board.
2) Play the stairstep (audio 7 kHz) portion of the MH-1 Alignment tape.
3) Adjust screw (3) (Fig. 1-8-4). which is the azimuth adjustment, for maximum output.
4) Turn screws (1), (2) and (3) by small and equal increments (about 45° at a time) to adjust the A/C head height for maximum two audio outputs. Slightly raise and lower the height to confirm the maximum output position.
5) Observe the two audio signals and adjust screw ③ to align the CH-1 phase with CH-2 phase as shown in Fig. 1-8-5.
6) Observe the FM waveform and tighten the guide roller setscrews. Use care not to disturb the height adjustments. Then again confirm the FM waveform.

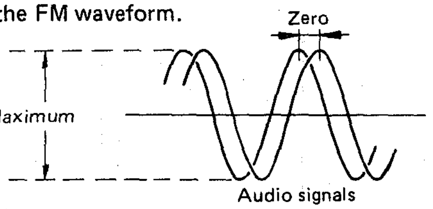
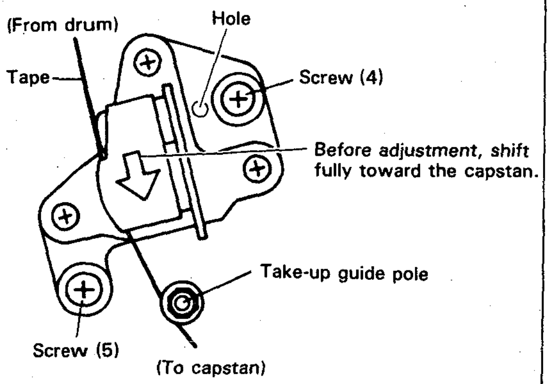



Fig. 1-8-5 Audio head phase adjustment</td></tr>
<tr><td rowspan="2">3</td><td colspan="4">This determines the distance between the sound and picture information on the tape. Correct adjustment is important for providing synchronization of picture and sound in the program. Incorrect adjustment is particularly noticeable in the slow speed (EP) mode.
Observe the FM waveform by connecting an oscilloscope to the video play-back circuit test point (FM OUT). Trigger the oscilloscope externally with the drum flipflop signal. Use plus (+) trigger to view the CH-2 waveform. Set the tracking adjustment to the neutral (AUTO) position.</td></tr>
<tr><td colspan="3">Control head phase (X value)


(From drum)
Hole
Tape
Screw (4)
Before adjustment, shift fully toward the capstan.
Take-up guide pole
Screw (5)
(To capstan)

Fig. 1-8-6 Control head phase</td><td>1) Play the stairstep portion of the MH-1 Alignment tape.
2) See Fig. 1-8-6. Slightly loosen screws (4) and (5). Set the A/C head positioning tool over screw (4) with the pin of the tool inserted into the indicated hole.
3) Turn the tool counterclockwise to shift the A/C head fully toward the capstan direction.
4) While observing the CH-2 FM waveform, gradually turn the tool clockwise. Stop at the peak output position and tighten screw (5). Remove the tool and tighten screw (4).
5) Replace alignment tape MH-1L with MH-1, play back the stairstep segment of the alignment tape MH-1L.
6) Operate the tracking adjustment and confirm that the maximum FM waveform is obtained at the neutral setting.
7) If the FM output peak is not obtained at tracking neutral position, shift the A/C head at the FM output peak nearest to this position.</td></tr>
</table>

No.	Item	Adjustment parts	Operating mode	Description
4	Final checks			1) Supply a video or TV signal (monochrome is preferable). Use a spare tape and record and play back. Confirm that the playback FM signal conforms to the parameters indicated in Fig. 1-8-1. Check for both SP and EP modes. 2) Connect the oscilloscope to the test point (FM OUT) of the FM audio play-back circuit. Play the stairstep portion (which includes the FM audio carrier) of the MH-1L Alignment tape. Confirm absence of severe drop in FM waveform level. 3) Perform the checks and, if necessary adjustments, of the Electrical Adjustments Section for the servo, video and audio (and FM audio) circuits.

SECTION 2
ELECTRICAL ADJUSTMENTS

2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Color television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Audio generator
5. Audio voltmeter
6. Digital voltmeter
7. Signal generator: TV-channel
8. Signal generator:
   NTSC color bars, stairstep, video sweeper or multi-burst, audio multiplex TV
9. Distortion meter
10. Recording tape
11. Alignment tapes: MH-1, MH-1L, MH-1H, MH-F1
12. Patch cord: PTU94001 (PRE/REC board to CONNECTOR board)
13. Vectorscope
14. Chip driver: YTU93004 (for PRE/REC board)

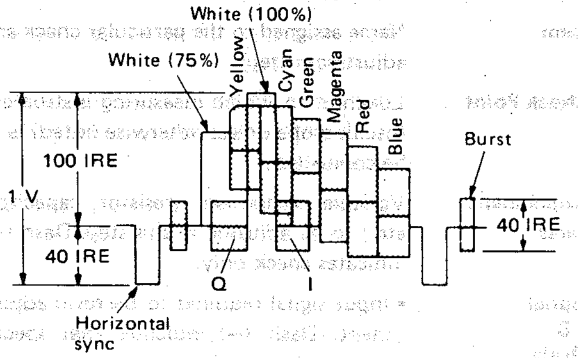

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1 V
40 IRE
40 IRE
Q
I
Horizontal sync

Fig. 2-1-1 Color bars signal waveform

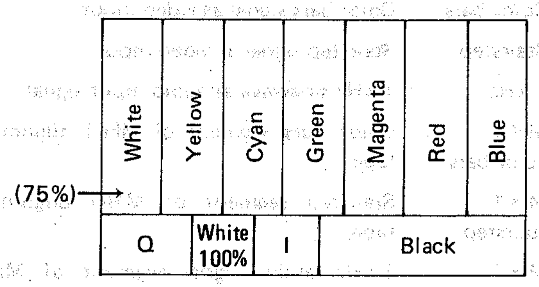

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 2-1-2 Color bars pattern

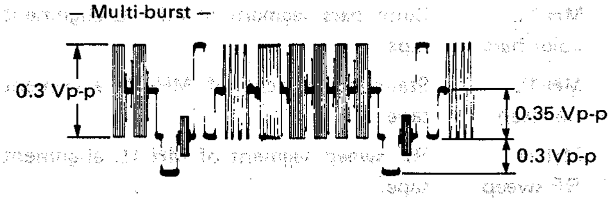

— Multi-burst —
0.3 Vp-p
0.35 Vp-p
0.3 Vp-p

Fig. 2-1-3 Input signal level for multi-burst

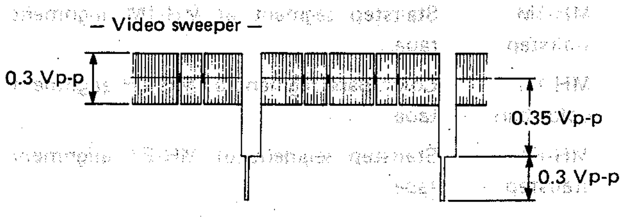

— Video sweeper —
0.3 Vp-p
0.35 Vp-p
0.3 Vp-p

Fig. 2-1-4 Input signal level for video sweeper

2.1.2 Check and adjustment steps

The check and adjustment steps are provided in the following in the form of charts. For clarity, the nomenclature used in the charts is outlined below.

No.	Checks and adjustments are numbered in the recommended sequence in which they are to be performed.
Item	Name assigned to the particular check and adjustment step.
Check Point	Location to which measuring instrument (oscilloscope unless otherwise noted) is to be connected.
Adjustment Parts	Variable component (resistor, capacitor, etc.) to be adjusted in this step. Dash (—) indicates check only.
Signal & Mode	• Input signal required to perform adjustment. Dash (—) indicates that special signal is not required. • Equipment operating mode at time of check or adjustment.
Color bars	Color bars signal as video input.
Stairstep	Stairstep signal as video input.
1 kHz	1 kHz sinewave as audio input signal.
MH-1 color bars	Color bars segment of MH-1 alignment tape.
MH-1 stairstep	Stairstep segment of MH-1 alignment tape.
MH-1 1 kHz	1 kHz audio signal segment of MH-1 alignment tape.
MH-1 RF sweep	RF sweep segment of MH-1 alignment tape.
MH-1L color bars	Color bars segment of MH-1L alignment tape.
MH-1L stairstep	Stairstep segment of MH-1L alignment tape.
MH-1L RF sweep	RF sweep segment of MH-1L alignment tape.
MH-1M color bars	Color bars segment of MH-1M alignment tape.
MH-1M stairstep	Stairstep segment of MH-1M alignment tape.
MH-1H color bars	Color bars segment of MH-1H alignment tape.
MH-F1 stairstep	Stairstep segment of MH-F1 alignment tape.
MH-F1 1 kHz	1 kHz FM audio signal segment of MH-F1 alignment tape.
E-E	Power on and machine in Stop mode.
REC	Recording mode
PB	Playback mode
SEARCH	Search (FWDS and REVS) playback mode
SLOW	Slow motion playback mode
STILL	Pause during playback mode
A DUB	Audio dubbing mode
SP mode	SP recording speed
EP mode	EP recording speed
LP mode	LP recording speed
S-VHS mode (S mode)	Super-VHS recording mode
Description	This column provides an explanation of the step, notes and adjustment values.

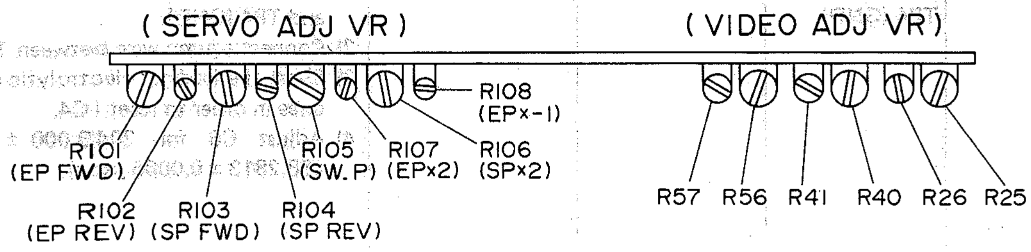
2.2 TIMER CIRCUIT

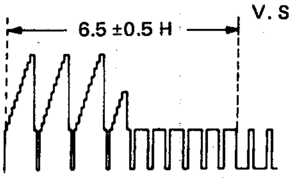
Note: *Unless otherwise noted, all test points and adjustments are located on the JOG/TIMER board.*

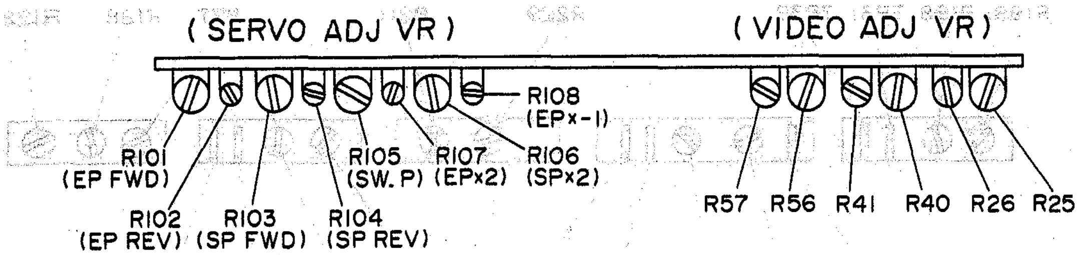
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Timer clock	TP3 TP4 (GND)	C6	• E-E	1) Connect a frequency counter between TP3 and TP4 (GND). 2) Connect a jump wire between TP1 and TP2. 3) Short the leads of electrolytic capacitor C11 once in order to reset IC4. 4) Adjust C6 for 2048.000 ± 0.02 Hz (or 488.2813 ± 0.0005 μsec).

2.3 SERVO CIRCUIT

Note: *Unless otherwise noted, all test points and adjustments are located on the VIDEO RF board.*

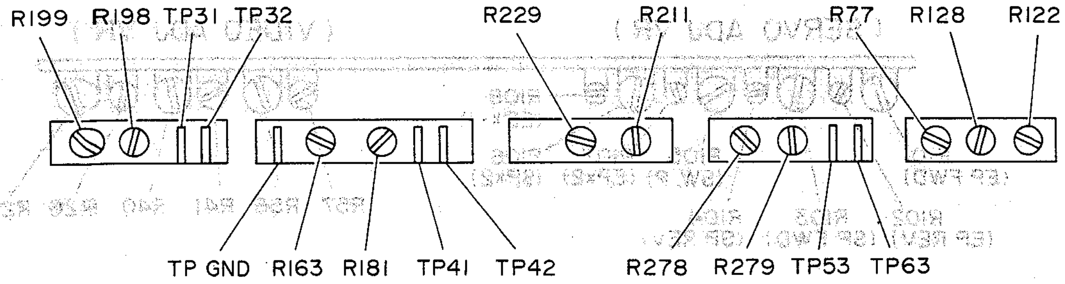
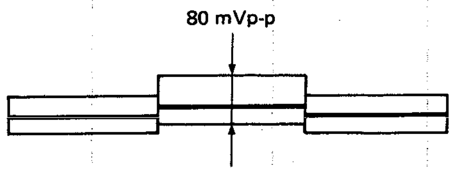

(SERVO ADJ VR)
(VIDEO ADJ VR)
R108 (EPx-1)
R101 (EP FWD)
R105 (SW. P)
R107 (EPx2)
R106 (SPx2)
R102 (EP REV)
R103 (SP FWD)
R104 (SP REV)
R57
R56
R41
R40
R26
R25

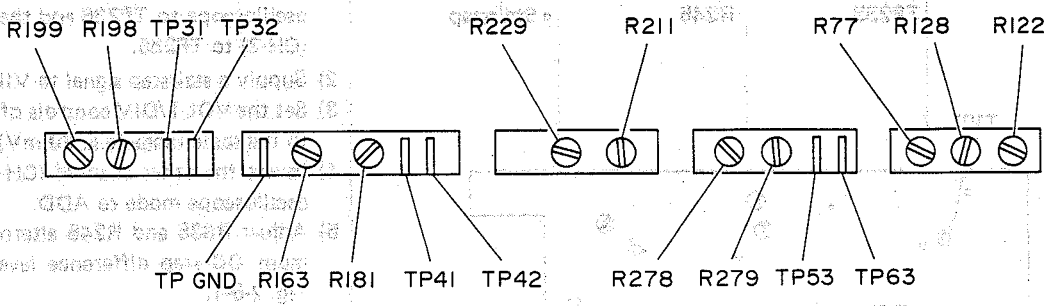
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	SP PB switching point	TP410 (VIDEO MAIN board)	R105 (SW P.)  6.5 ±0.5 H V. Sync Fig. 2-3-1	• PB • MH-1 stairstep • Trigger slope (—) • SP mode	1) Connect an oscilloscope to TP410 of the VIDEO MAIN board. 2) Trigger the oscilloscope externally (— slope) with the signal from TP811 of the VIDEO MAIN board. (DRUM FF) 3) Play back the stairstep segment of MH-1 alignment tape. 4) Adjust R105 to position the trigger point 6.5 ± 0.5H from V. sync.
2	SP slow tracking preset	Monitor	R103 (SP FWD) R104 (SP REV)	• SP mode • Color bar or Tuner • REC then Slow PB	1) Set the SLOW TRACKING control to the center detent position. 2) Record a color bar signal in the SP mode, then play back the recorded color bar in the Slow mode. 3) Adjust R103 for FWD direction and R104 for REV direction to minimize noise bars on the video monitor screen.
	EP slow tracking preset	Monitor	R101 (EP FWD) R102 (EP REV)	• EP mode • Color bar or Tuner • REC then Slow PB	1) In the same manner as above, adjust R101 for FWD direction and R102 for REV direction and R102 for REV direction to minimize noise bars on the video monitor screen for the EP mode.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
	 (SERVO ADJ VR) (VIDEO ADJ VR) R108 (EPx-1) R101 (EP FWD) R105 (SW. P) R107 (EPx2) R106 (SPx2) R102 (EP REV) R103 (SP FWD) R104 (SP REV) R57 R56 R41 R40 R26 R25				
3	SP X2 tracking preset	Monitor	R106 (SP X2)	• SP mode • Color bar or Tuner • REC then X2 Play	1) Set the NORMAL TRACKING control to the center detent position. 2) Record a color bar signal in the SP mode, then play back the recorded color bar in the X2 Play mode. 3) Adjust R106 to minimize noise bars on the video monitor screen.
	EP X2 tracking preset	Monitor	R107 (EP X2)	• EP mode • Color bar or Tuner • REC then X2 Play	1) In the same manner as above, adjust R107 for the EP mode.
4	EP X(−1) tracking preset	Monitor	R108 (EP X−1)	• EP mode • Color bar or Tuner • REC then X(−1) Play	1) Set the NORMAL TRACKING control to the center detent position. 2) Record a color bar signal in the EP mode, then play back the recorded color bar in the X(−1) Play mode. 3) Adjust R108 to minimize noise bars on the video monitor screen.
5	V. pulse position	Monitor	R3 (TERMINAL board)	• SP mode • Color bar or Tuner • REC then PB ↓ • STILL	1) Record a color bar signal, then play back the recorded color bar. 2) In the Still mode, observe the monitor and adjust R3 (REAR panel) for the minimum vertical jitter.

2.4 AUDIO CIRCUIT

Note: *Unless otherwise noted, all test points and adjustments are located on the AUDIO board.*

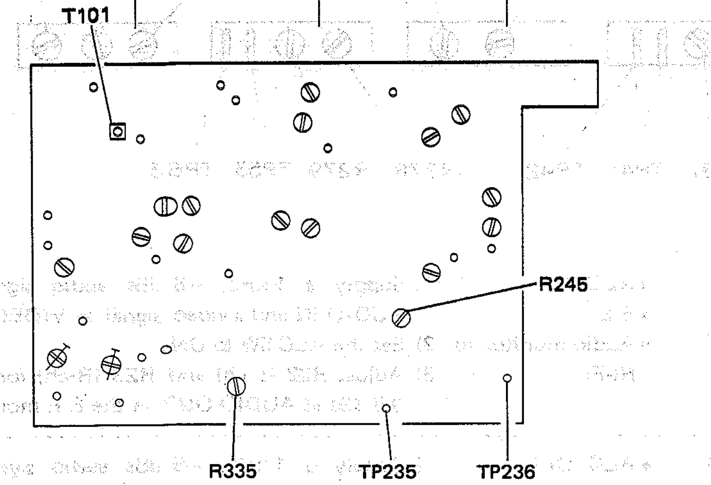
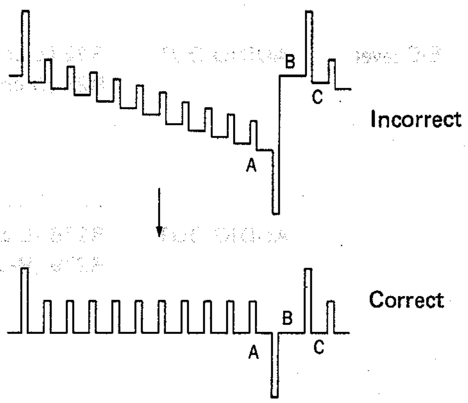
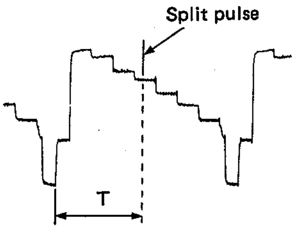
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
	 R199 R198 TP31 TP32 R229 R211 R77 R128 R122 TP GND R163 R181 TP41 TP42 R278 R279 TP53 TP63				
1	Audio bias level	TP31 (L-ch) TP32 (GND)	R199 (L-ch)	• VHS mode • EP • REC • No signal	1) Connect a millivoltmeter between TP31 and TP32. 2) Set for REC mode without signal. 3) Adjust R199 for 2.8 ± 0.1 mV rms.
		TP41 (R-ch) TP42 (GND)	R198 (R-ch)	• VHS mode • EP • REC • No signal	1) Connect a millivoltmeter between TP41 and TP42. 2) Set for REC mode without signal. 3) Adjust R198 for 2.8 ± 0.1 mV rms.
2	Audio PB level	AUDIO OUT	R163 (L-ch) R229 (R-ch)	• MH-1 Color bar • PB • Dolby NR SW : OFF	1) Connect an audio tester to AUDIO OUT. 2) Play back the color bar segment of the MH-1 alignment tape. 3) Adjust R163 (L-ch) and R229 (R-ch) so that the audio output level becomes −8 ± 1 dBs when playback.
3	REC level	AUDIO OUT	R181 (L-ch) R211 (R-ch)	• VHS mode • SP • REC then PB • Audio monitor to NORMAL $^{L}_{R}$ • Color bar • Dolby NR SW : OFF	1) Connect an audio tester to AUDIO OUT. 2) Supply an audio signal (−8 dBs/1 kHz) to AUDIO IN and record together with a color bar signal, then play it back. 3) Adjust R181 (L-ch) and R211 (R-ch) so that the audio output level becomes −6 ± 1 dBs when playback.
4	REC FM level	TP53	R77	• S-VHS mode • SP • REC then PB • No Audio signal • Color bar	1) Trigger the oscilloscope externally with the signal from TP811 of the VIDEO MAIN board. 2) Record in the SP mode without an audio signal, then play back. 3) Adjust R77 for 80 mVp-p playback level of FM audio.  Fig. 2-4-1



No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
5	E-E level	AUDIO OUT	R22 (L-ch) R23 (R-ch)	• ALC: ON • E-E • Audio monitor to Hi-Fi	1) Supply a 1 kHz, −8 dBs audio signal to AUDIO IN and a video signal to VIDEO IN. 2) Set the ALC SW to ON. 3) Adjust R22 (L-ch) and R23 (R-ch) for −6 ± 0.5 dBs at AUDIO OUT in the E-E mode.
		AUDIO OUT	R278 (L-ch) R279 (R-ch)	• ALC: OFF • E-E • Audio monitor to Hi-Fi	1) Supply a 1 kHz, −8 dBs audio signal to AUDIO IN and a video signal to VIDEO IN. 2) Set the Hi-Fi AUDIO REC LEVEL control to the center position. 3) Adjust R278 (L-ch) and R279 (R-ch) for −6 ± 0.5 dBs at AUDIO OUT in the E-E mode.
6	Level indicator	FDP (Level Ind.)	R122 (L-ch) R128 (R-ch)	• E-E • ALC: ON • Level indicator: ON • Audio monitor to Hi-Fi	**Note:** *Perform the level indicator adjustment after completing the E-E level adjustment.* 1) Supply a 1 kHz, −8 dBs audio signal to AUDIO IN. 2) Set the ALC SW to ON and the LEVEL INDICATOR SW to ON. 3) Adjust R122 (L-ch) and R128 (R-ch) to the point where the FDP level indicators read 0 dB (all white LEDs light) in the E-E mode.

2.5 ON SCREEN CIRCUIT

Note: *Unless otherwise noted, all test points and adjustments are located on the ON SCREEN board.*

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Y level 	TP236 TP235	R335 R245	• E-E • Stairstep	1) Connect one channel (CH-1) of a dual trace oscilloscope to TP236 and the other channel (CH-2) to TP235. 2) Supply a stairstep signal to VIDEO IN. 3) Set the VOLT/DIV controls of both channels to the same range (e.g. 20 mV). 4) Invert the other channel (CH-2) and set the oscilloscope mode to ADD. 5) Adjust R335 and R245 alternately for minimum DC step difference level as shown in Fig. 2-5-1.  Fig. 2-5-1
2	Split pulse position	TP235	T101	• E-E • Stairstep • Processor mode • Split mode	1) Connect an oscilloscope to TP235 and supply a stairstep signal to VIDEO IN. 2) First press the processor button, then press the split button. 3) Adjust T101 for 31 ± 1 μsec of "T" as shown in Fig. 2-5-2.  Fig. 2-5-2

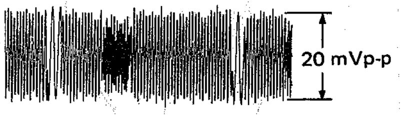
<table>
<tr><th>No.</th><th>Item</th><th>Check Point</th><th>Adjustment Parts</th><th>Signal & Mode</th><th>Description</th></tr>
<tr><td>3</td><td>White balance center</td><td>TP231</td><td>R222
R225</td><td>• E-E
• Color bar
• Processor mode</td><td>1) Connect an oscilloscope to TP231 and supply a color bar signal to VIDEO IN.
2) Press the processor button.
3) Adjust R222 and R225 alternately for minimum level (less than 20 mVp-p).


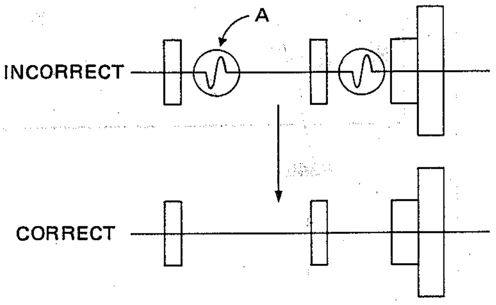
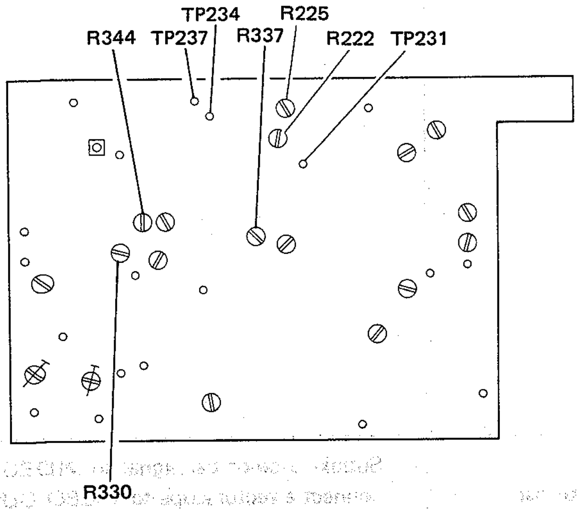
Fig. 2-5-3</td></tr>
<tr><td rowspan="2">4</td><td>Carrier balance</td><td>TP234</td><td>R337</td><td>• E-E
• Color bar
• Processor mode</td><td rowspan="2">1) Connect an oscilloscope to TP234 and supply a color bar signal to VIDEO IN.
2) Press the processor button.
3) Adjust R337 for minimum level (less than 60 mVp-p) of "A".


Fig. 2-5-4</td></tr>
<tr><td colspan="4">

TP234
R225
R344
TP237
R337
R222
TP231
R330

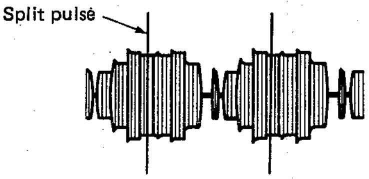
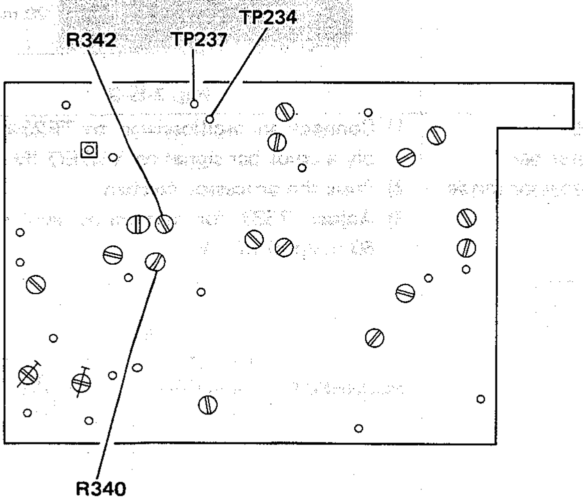
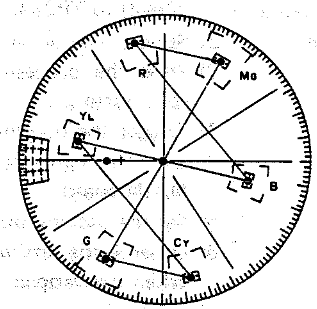
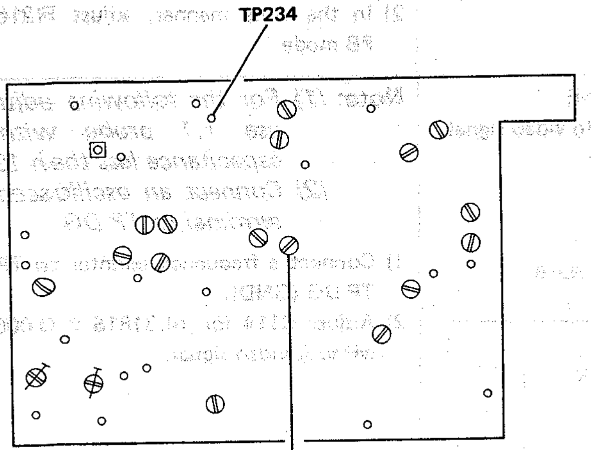
</td></tr>
<tr><td>5</td><td>Color gain (1), (2)</td><td>TP237
TP234</td><td>R330
R344</td><td>• E-E
• Color bar
• Processor mode
• Split mode</td><td>1) Connect one channel (CH-1) of a dual trace oscilloscope to TP237 and the other channel (CH-2) to TP234.
2) Supply a color bar signal to VIDEO IN.
3) Press the processor button, then press the split button.
4) Trigger the oscilloscope externally (– slope) with the signal from TP410 of the VIDEO MAIN board.
5) Set the oscilloscope for ALT mode.
6) Observe the left waveform of the split pulse. When overlapped, adjust R344 for minimum level difference as shown in Fig. 2-5-5.
7) In the same manner, observe the right waveform of the split pulse. When overlapped, adjust R330 for minimum level difference.


Fig. 2-5-5</td></tr>
</table>

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
6	Burst gain, phase	TP237 TP234  	R342	• E-E • Color bar • Processor mode	1) Connect one channel (CH-1) of a dual trace oscilloscope to TP237 and the other channel (CH-2) to TP234. 2) Supply a color bar signal to VIDEO IN and press the processor button. 3) Set the oscilloscope for ALT mode, and overlap the waveforms. 4) Adjust R342 for equal burst levels (less than 10 mVp-p).
		Vectorscope  Fig. 2-5-6	R340	• E-E • Color bar • Processor mode	1) Supply a color bar signal to VIDEO IN and connect a vectorscope to VIDEO OUT. 2) Set for the processor mode and adjust R340 to align the vectorscope waveform with what obtained in the E-E mode (less than ±2°).

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
7	White balance correct level	TP234 Vectorscope	R230	• E-E • Color bar • Processor mode	1) Supply a color bar signal to VIDEO IN, and connect a vectorscope to VIDEO OUT via a TV monitor and observe the waveform on the vectorscope. 2) Connect an oscilloscope to TP234 and set for the processor mode. 3) Press the C. LEVEL "+" button while pressing the W. BAL-I button and set a center dot for maximum on the I-axis of the vectorscope as shown in Fig. 2-5-7. 4) Adjust R230 for 286 ± 10 mVp-p of "A".



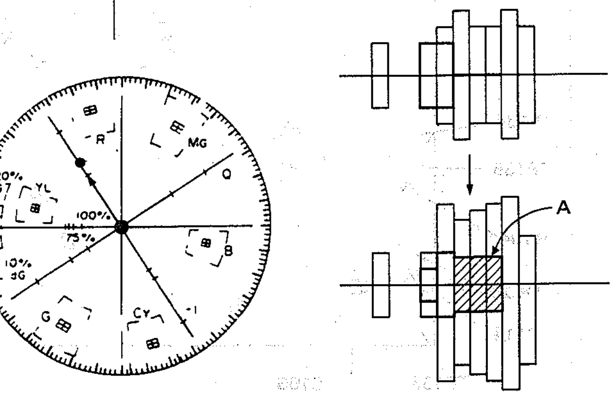
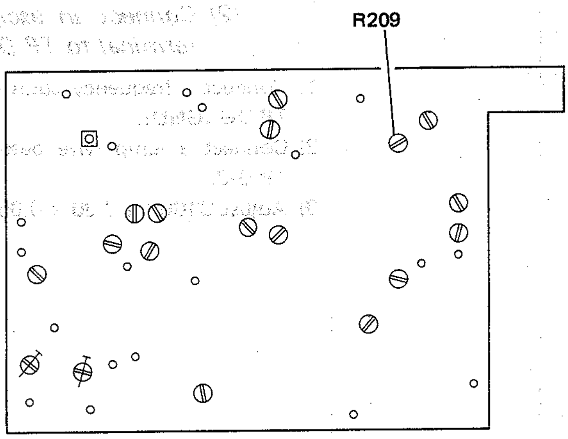


Fig. 2-5-7

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
8	E-E white balance	I-axis of vectorscope (132° ± 2°)	R209	• E-E • Color bar • Processor mode	1) Supply a color bar signal to VIDEO IN, and connect a vectorscope to VIDEO OUT via a TV monitor. Observe the waveform on the vectorscope. 2) Set for the processor mode. 3) Press the C. LEVEL "+" button while pressing the W. BAL-I button and set a center dot for maximum on the I-axis of the vectorscope. 4) Adjust R209 so that the dot overlaps on the I-axis of the vectorscope as shown in Fig. 2-5-8.



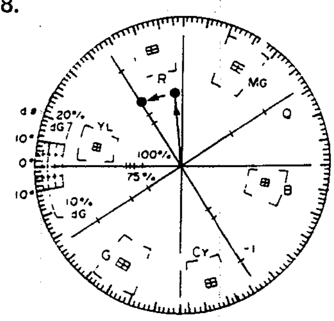
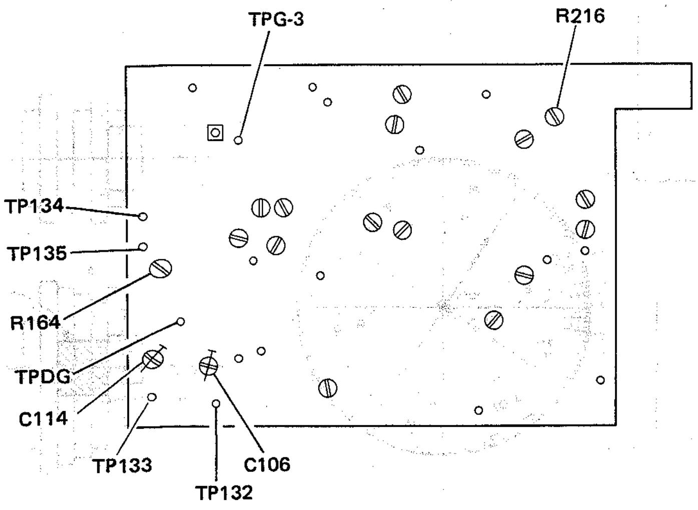
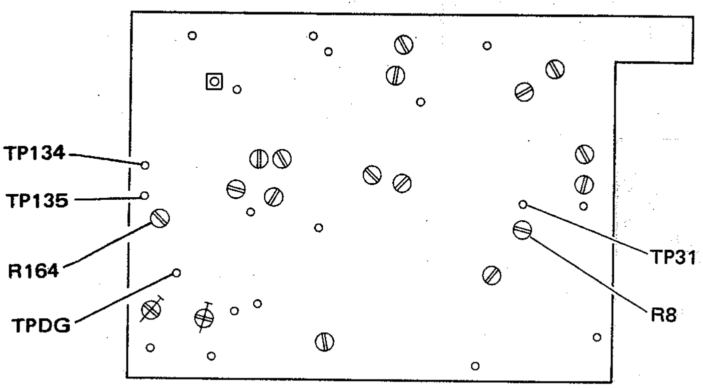
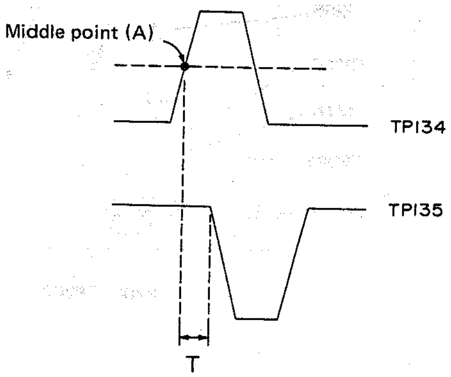
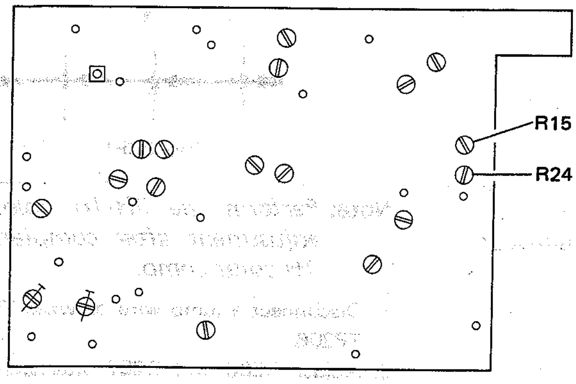
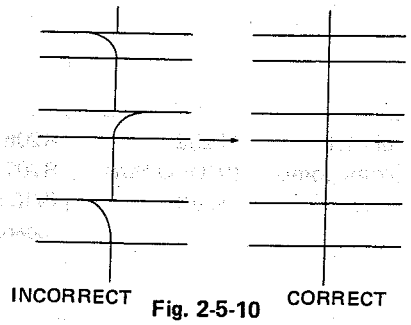


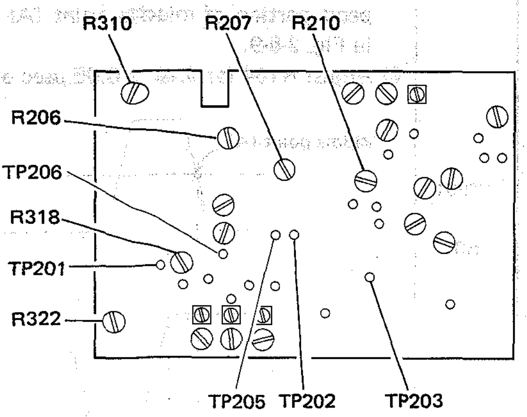
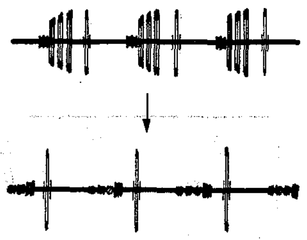
Fig. 2-5-8

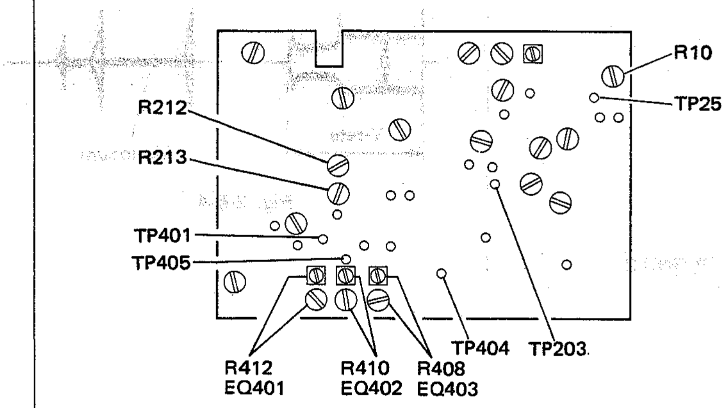
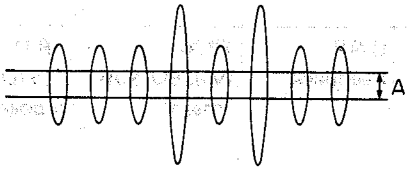
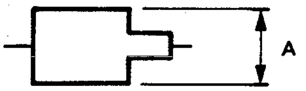
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
9	PB white balance	I-axis of vectorscope	R216	• MH-1 Color bar • PB • Processor mode	**Note:** *Perform the PB mode adjustment after completing the E-E mode.* 1) Play back the color bar segment of the MH-1 alignment tape. 2) In the same manner, adjust R216 for the PB mode.
10	Color burst clock  TPG-3 R216 TP134 TP135 R164 TPDG C114 TP133 C106 TP132	TP133 TP DG	C114	• E-E • No video signal	**Note:** *(1) For the following adjustment, use 1:1 probe with input capacitance less than 100 pF.* *(2) Connect an oscilloscope GND terminal to TP DG.* 1) Connect a frequency counter to TP133 and TP DG (GND). 2) Adjust C114 for 14.31818 ± 0.00015 MHz without video signal.
11	Dot clock	TP132 TP DG	C106	• E-E	**Note:** *(1) For the following adjustment, use 1:1 probe with input capacitance less than 100 pF.* *(2) Connect an oscilloscope GND terminal to TP DG.* 1) Connect a frequency counter to TP132 and TP DG (GND). 2) Connect a jump wire between TP135 and TP G-3. 3) Adjust C106 for 7.30 ± 0.05 MHz.

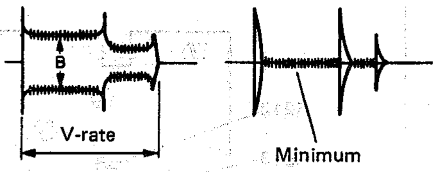
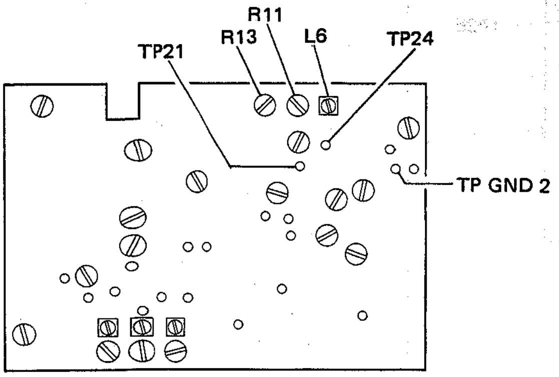
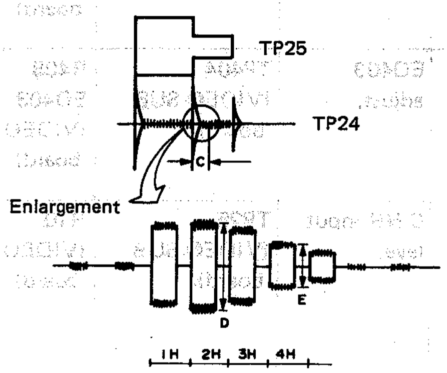
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
12	AFC  	TP134 TP135	R164	• E-E • Color bar	1) Supply a color bar signal to VIDEO IN. 2) Connect one channel of a dual trace oscilloscope to TP134 and the other channel to TP135. 3) Trigger the oscilloscope externally with signal from TP134 (CH-1). 4) Set the oscilloscope for ALT mode. 5) Use the control of the oscilloscope to expand portion of middle point (A) as shown in Fig. 2-5-9. 6) Adjust R164 for 0.20 ± 0.05 μsec of "T".  Fig. 2-5-9
13	VCO	TP31 TP DG	R8	• E-E • No video signal	**Note:** *(1) Use 1:1 probe with input capacitance less than 100 pF.* *(2) Connect an oscilloscope GND terminal to TP DG.* 1) Connect a frequency counter to TP31 and TP DG (GND). 2) Adjust R8 for 503 ± 10 kHz.
14	Skew comp. and offset  	Monitor	R15 R24	• SP • Color bar or Tuner • Processor mode • Split mode • REC then Search FF	1) Supply a color bar signal to VIDEO IN and set for the processor mode. 2) Press the SPLIT button. 3) Record a split-screen, then play back the recorded split-screen. 4) Set for the Search FF mode. 5) Adjust R15 and R24 alternately so that vertical line is straight as shown in Fig. 2-5-10.  Fig. 2-5-10

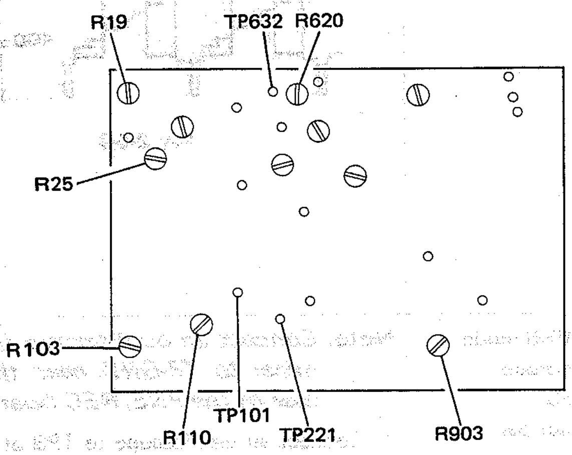
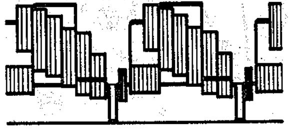
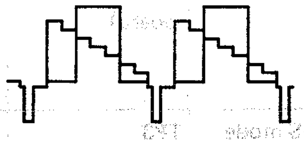
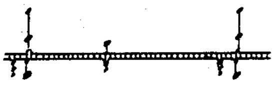
2.6 VIDEO CIRCUIT

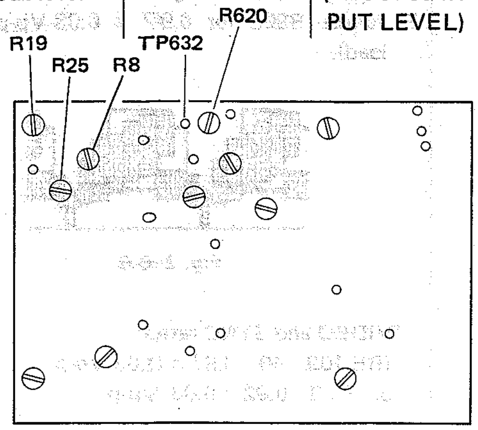
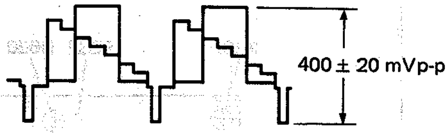
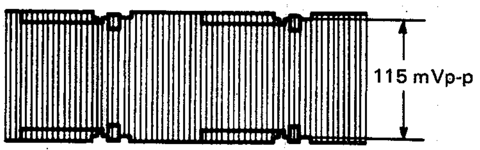
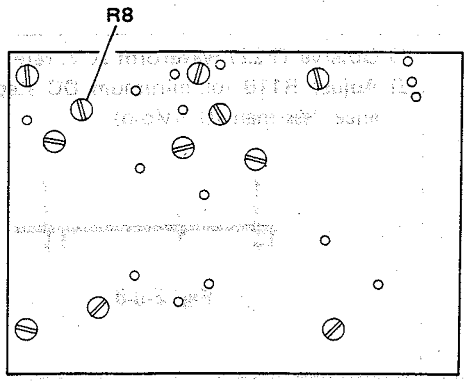
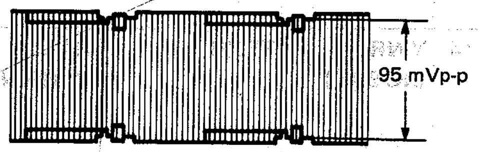
Note: *Unless otherwise noted, all test points and adjustments are located on the VIDEO MAIN board.*

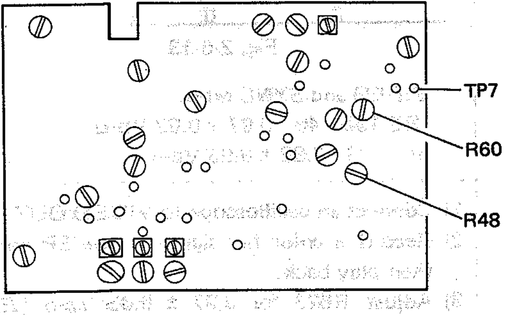
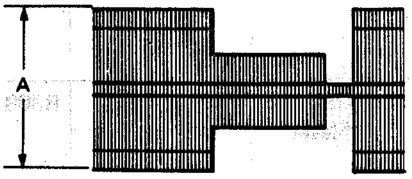
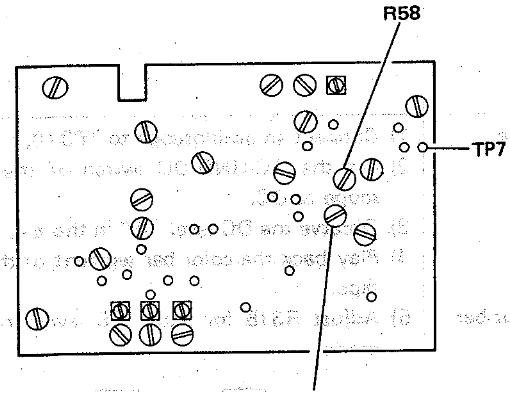
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	PB Y level	TP201 TP203 (VIDEO SUB board)  R310 R207 R210 R206 TP206 R318 TP201 R322 TP205 TP202 TP203	R318 (VIDEO SUB board)	• MH-1H • Color bar • PB • SP	1) Connect one channel of a dual trace oscilloscope to TP201 and the other channel to TP203. 2) Set the oscilloscope for ALT mode. 3) Adjust R318 for equal channel levels.
2	Y level	TP201 TP203 (VIDEO SUB board)	R322 (VIDEO SUB board)	• E-E • Y/C INPUT • Color bar	1) Connect one channel of a dual trace oscilloscope to TP201 and the other channel to TP203. 2) Set the oscilloscope for ALT mode. 3) Adjust R322 for equal channel levels.
3	2H-1H color comb	TP202 (VIDEO SUB board)	R310 R210 (VIDEO SUB board)	• E-E • Multi-burst	1) Connect a signal generator to VIDEO IN and an oscilloscope to TP202. 2) Connect a jump wire between TP205 and TP206. 3) Adjust R310 and R210 alternately for minimum level as shown in Fig. 2-6-1.  Fig. 2-6-1
4	0H-1H color comb	TP202 (VIDEO SUB board)	R206 R207 (VIDEO SUB board)	• E-E • Multi-burst	**Note:** *Perform the 0H-1H color comb adjustment after completing 2H-1H color comb.* 1) Disconnect a jump wire between TP205 and TP206. 2) Adjust R206 and R207 alternately in the same manner as above (2.6.3).

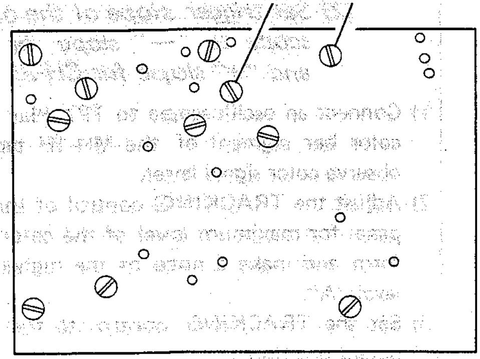
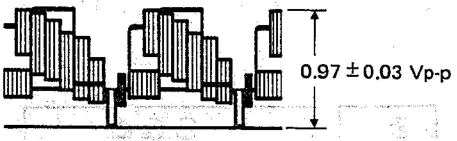
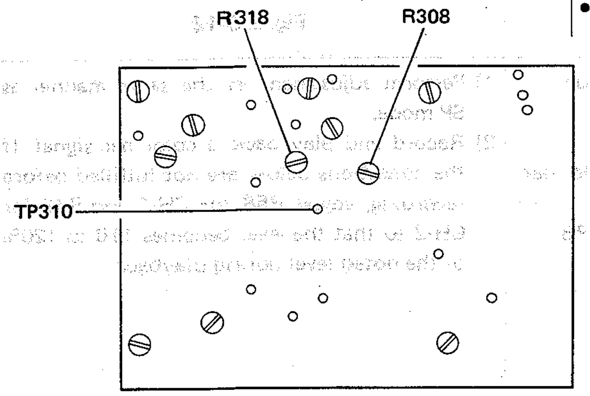
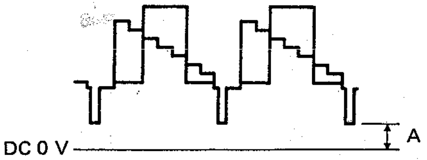
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
5	Y comb  R10 TP25 R212 R213 TP401 TP405 TP404 TP203 R412 EQ401 R410 EQ402 R408 EQ403	TP203 (VIDEO SUB board)	R212 R213 (VIDEO SUB board)	• E-E • Color bar	1) Connect an oscilloscope to TP203. 2) Adjust R212 and R213 alternately for minimum chromatic level.
6	EQ402 adjust.	TP405 (VIDEO SUB board)	R410 EQ402 (VIDEO SUB board)	• E-E • Color bar	1) Connect an oscilloscope to TP405. 2) Adjust R410 and EQ402 alternately for minimum "A".  Fig. 2-6-2
7	EQ401 adjust.	TP401 (VIDEO SUB board)	R412 EQ401 (VIDEO SUB board)	• E-E • Color bar	1) Connect an oscilloscope to TP401. 2) In the same manner, adjust R412 and EQ401.
8	EQ403 adjust.	TP404 (VIDEO SUB board)	R408 EQ403 (VIDEO SUB board)	• E-E • Color bar	1) Connect an oscilloscope to TP404. 2) In the same manner, adjust R408 and EQ403.
9	C NR input level	TP25 (VIDEO SUB board)	R10 (VIDEO SUB board)	• VHS mode • SP mode • REC then PB • Color bar	1) Observe TP25 waveform at V. rate. 2) Adjust R10 so that the color level (A) is 0.27 ± 0.01 Vp-p.  Fig. 2-6-3

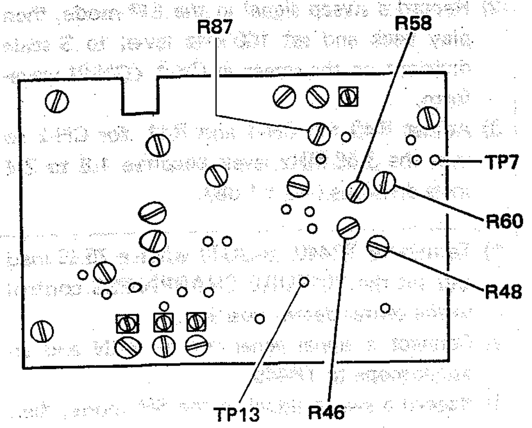
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
10	C NR Noise cancel	TP24 (VIDEO SUB board)	R13 L6 (VIDEO SUB board)	• VHS mode • SP mode • PB • MH-1 color bar • EDIT: OFF	1) Observe the TP24 waveform at V. rate. 2) Adjust R13 and L6 to minimize the 3.58 MHz level "B", i.e., so that only the noise component is observable as shown in Fig. 2-6-4.  **Fig. 2-6-4**
	 				
11	C NR Feedback	TP24 (VIDEO SUB board)	R11 (VIDEO SUB board)	• VHS mode • PB • MH-1 color bar • EDIT: OFF	1) Short TP21 to TP GND2. Use the controls of the oscilloscope to expand portion "C" of the TP24 waveform as shown in Fig. 2-6-5. 2) Adjust R11 so that the maximum 3.58 MHz amplitude "D" and waveform segment "E" are related as follows: D : E = 2 : 1 ± 0.1 **Note:** *Read p-p value of D and noise center of E.*  **Fig. 2-6-5**

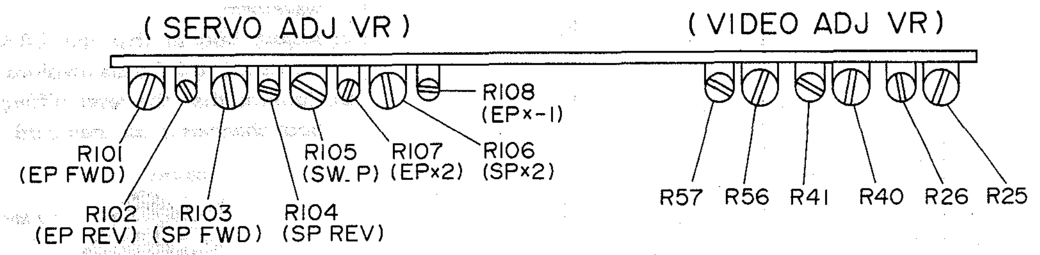
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
12	E-E level	VIDEO OUT  R19 TP632 R620 R25 R103 TP101 R110 TP221 R903	R903	• E-E • Color bar • S-VHS mode	1) Connect an oscilloscope to VIDEO OUT and supply a color bar signal to VIDEO IN. 2) Adjust R903 for 0.97 ± 0.03 Vp-p (75 Ω load).  Fig. 2-6-6 *VIDEO and SYNC ratio: IRE 100 : 40 : 0.97 ± 0.03 Vp-p or 7 : 3 : 0.92 ± 0.03 Vp-p
13	CCD bias	TP101	R103 (CCD BIAS)	• S-VHS mode • SP mode • E-E • Color bar	**Note:** *Confirm that the video signal is 0.97 ± 0.03 Vp-p (75 Ω load) at VIDEO OUT. If necessary, perform the "E-E level" adjustment (Section 2.6.12) before this adjustment.* 1) Connect an oscilloscope to TP101 and supply a color bar signal to VIDEO IN. 2) Adjust R103 for maximum output level.  Fig. 2-6-7
14	Y NR (NC BAL)	TP221	R110 (Y NR NC BAL)	• S-VHS mode • EP mode • E-E • Color bar	1) Observe TP221 waveform at V. rate. 2) Adjust R110 for minimum DC step difference (less than 10 mVp-p).  Fig. 2-6-8

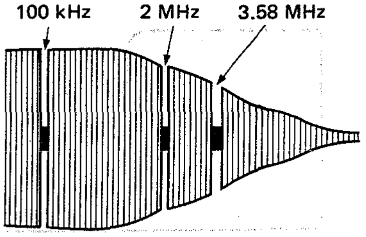
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
15	Processor input level	TP632 	R620 (PROCESS INPUT LEVEL)	• S-VHS mode • SP mode • E-E • Color bar	1) Connect an oscilloscope to TP632 and supply a color bar signal to VIDEO IN. 2) Adjust R620 for 400 ± 20 mVp-p signal level in the SP mode.  Fig. 2-6-9
16	S-VHS mode CH-1 & CH-2 REC FM level	TP3 (CH-1) (PRE/REC board)	R19 (CH-1)	• S-VHS mode • EP mode • REC • Color bar	**Note:** *Connect an oscilloscope GND terminal to TP-GND near the shield case of the PRE/REC board.* 1) Connect an oscilloscope to TP3 of the PRE/REC board and record a color bar signal in the EP mode. 2) Adjust R19 for 115 mVp-p pedestal level, between centers of the waveform outline at the pedestal portion.  Fig. 2-6-10
		TP4 (CH-2) (PRE/REC board)	R25 (CH-2)	• S-VHS mode • EP mode • REC • Color bar	1) Connect an oscilloscope to TP4 of the PRE/REC board and record a color bar signal in the EP mode. 2) In the same manner, adjust R25 for 125 mV p-p.
17	VHS mode REC FM level	TP3 (PRE/REC board) 	R8	• VHS mode • EP • REC • Color bar	1) In the same manner as above 2.2.16, adjust R8 for 95 mVp-p.  Fig. 2-6-11

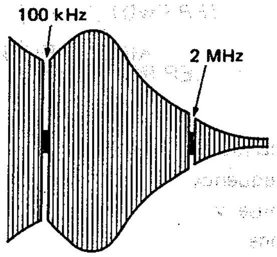
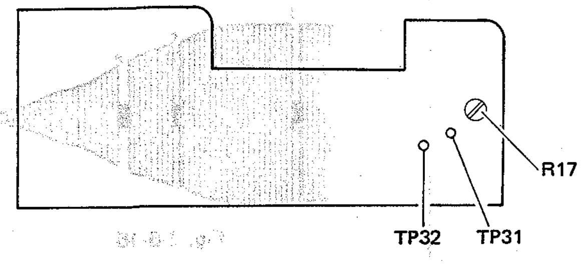
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
18	SP REC color level and balance	TP7 (VIDEO SUB board)  	R60 (CH-1) R48 (CH-2) (VIDEO SUB board)	• S-VHS mode • PB • MH-1H color bar • SP • REC then PB • SP • Color bar	**Note:** *(1) Trigger the oscilloscope externally with signal from TP13 of the VIDEO SUB board.* *(2) Set trigger slope of the oscilloscope to "–" slope for CH-1 and "+" slope for CH-2.* 1) Connect an oscilloscope to TP7. Play back a color bar segment of the MH-1H tape and observe color signal level. 2) Adjust the TRACKING control of the front panel for maximum level of the color waveform and make a note of the higher color level "A". 3) Set the TRACKING control to the center detent position. 4) Record and play back a color bar signal. If the conditions below are not fulfilled before recording, adjust R60 for CH-1 and R48 for CH-2 so that the level becomes 95 to 105% of the noted level during playback.  Fig. 2-6-12
19	EP REC color level and balance	TP7 (VIDEO SUB board)  	R58 (CH-1) R46 (CH-2) (VIDEO SUB board)	• S-VHS mode • EP • PB • MH-1H color bar • REC then PB • EP • Color bar	1) Perform adjustment in the same manner as SP mode. 2) Record and play back a color bar signal. If the conditions below are not fulfilled before recording, adjust R58 for CH-1 and R46 for CH-2 so that the level becomes 110 to 120% of the noted level during playback.

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
20	S-VHS mode PB Y level 	VIDEO OUT	R609	• S-VHS mode • SP • Color bar • EDIT mode ↓ ON • REC then PB	1) Connect an oscilloscope to VIDEO OUT. 2) Record a color bar signal in the SP mode, then play back. 3) Adjust R609 for 0.97 ± 0.03 Vp-p (75 Ω load).  Fig. 2-6-13 *VIDEO and SYNC ratio: IRE 100 : 40 : 0.97 ± 0.03 Vp-p or 7 : 3 : 0.92 ± 0.03 Vp-p
		VIDEO OUT	R623	• S-VHS mode • SP • Color bar • EDIT mode ↓ OFF • REC then PB	1) Connect an oscilloscope to VIDEO OUT. 2) Record a color bar signal in the SP mode, then play back. 3) Adjust R623 for 0.97 ± 0.03 Vp-p (75 Ω load).
21	VHS mode PB Y level 	VIDEO OUT	R308	• VHS mode • SP • Color bar • REC then PB	1) Connect an oscilloscope to VIDEO OUT. 2) Record a color bar signal in the SP mode, then play back. 3) Adjust R308 for 0.97 ± 0.03 Vp-p (75 Ω load). *VIDEO and SYNC ratio: IRE 100 : 40 : 0.97 ± 0.03 Vp-p or 7 : 3 : 0.92 ± 0.03 Vp-p
22	E-E/PB DC offset	TP310	R318	• VHS mode • SP • E-E • Color bar • PB • MH-1 color bar	1) Connect an oscilloscope to TP310. 2) Set the AC-GND-DC switch of the oscilloscope to DC. 3) Observe the DC level "A" in the E-E mode. 4) Play back the color bar segment of the MH-1 tape. 5) Adjust R318 for equal DC levels in the PB mode.  Fig. 2-6-14

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
23	PB burst level  R87 R58 TP7 R60 R48 TP13 R46	COLOR OUT	R87 (VIDEO SUB board)	• S-VHS mode • SP • Color bar • REC then PB	1) Connect an oscilloscope to COLOR OUT (CN11 pin 3). 2) Record a color bar signal in the SP mode, then play back. 3) Adjust R87 for burst level of 280 ± 10 mV p-p (75 Ω load).

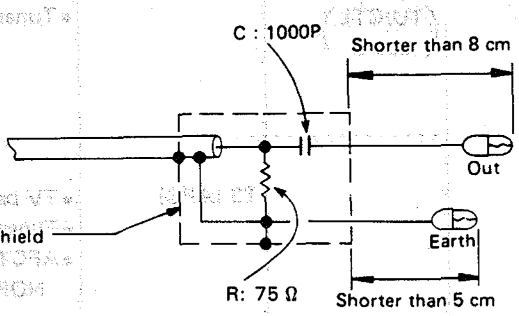
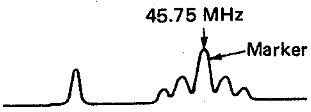

(SERVO ADJ VR)
(VIDEO ADJ VR)
R108 (EPx-1)
R101 (EP FWD)
R105 (SW. P)
R107 (EPx2)
R106 (SPx2)
R102 (EP REV)
R103 (SP FWD)
R104 (SP REV)
R57
R56
R41
R40
R26
R25

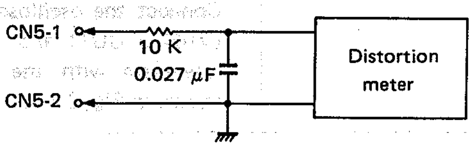
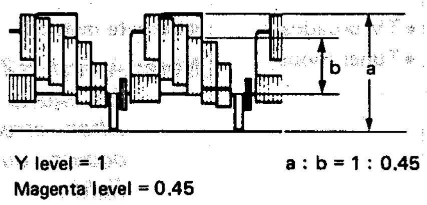
No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
24	S-VHS mode SP frequency response & balance	TP440	R26 (CH-1) R25 (CH-2) (VIDEO RF board)	• S-VHS mode • SP • Sweeper • REC then PB • EDIT mode ↓ ON	**Note:** • *Trigger the oscilloscope externally with signal from TP13 of the VIDEO SUB board.* • *Set trigger slope of the oscilloscope to "–" slope for CH-1 and "+" slope for CH-2.* 1) Terminate S-OUT with a 75 Ω load and set the PICTURE SHARPNESS control to the center detent position. 2) Connect a signal generator to S-IN and an oscilloscope to TP440. 3) Record a sweep signal in the SP mode, then play back and set 100 kHz level to 3 scale divisions on the oscilloscope screen at CH-1 (CH-2) waveform. 4) Adjust R26 for CH-1 and R25 for CH-2 so that the 3.58 MHz levels become 2.4 to 3.0 scale divisions (–1 ± 1 dB).  100 kHz 2 MHz 3.58 MHz Fig. 2-6-15

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
25	S-VHS mode EP frequency response & balance	TP440	R40 (CH-1) R41 (CH-2) (VIDEO RF board)	• S-VHS mode • EP • Sweeper • REC then PB • EDIT mode ↓ ON	1) In the same manner as above 2.6.24, perform the adjustment. 2) Record a sweep signal in the EP mode, then play back and set 100 kHz level to 3 scale divisions on the screen at CH-1 (CH-2) waveform. 3) Adjust R40 for CH-1 and R41 for CH-2 so that the 3.58 MHz levels become 1.8 to 2.4 scale divisions (–3 ± 1 dB).
26	VHS mode SP frequency response & balance	TP440	R56 (VIDEO RF board)	• VHS mode • SP • Sweeper • REC then PB • EDIT mode ↓ ON	1) Terminate TP440 (S-OUT) with a 75 Ω load and set the PICTURE SHARPNESS control to the center detent position. 2) Connect a signal generator to S-IN and an oscilloscope to TP440. 3) Record a sweep signal in the SP mode, then play back and set 100 kHz level to 3 scale divisions on the oscilloscope screen at CH-1 waveform. 4) Adjust R56 so that the 2.0 MHz level becomes 2.1 to 2.7 scale divisions (–2 ± 1 dB). 5) Confirm that the level difference between both channels is less than 2 dB.  Fig. 2-6-16
27	VHS mode EP frequency response & balance	TP440	R57 (VIDEO RF board)	• VHS mode • EP • REC then PB • Sweeper • EDIT mode ↓ ON	1) In the same manner as above 2.6.26, perform the adjustment. 2) Record a sweep signal in the EP mode, then play back and set 100 kHz level to 3 scale divisions on the oscilloscope screen at CH-1 waveform. 3) Adjust R57 so that the 2 MHz level becomes 1.8 to 2.4 scale divisions (–3 ± 1 dB).
28	DC balance  	TP31 TP32 (VIDEO RF board)	R17 (VIDEO RF board)	• S-VHS mode • E-E • No signal	1) Connect one channel of a dual trace oscilloscope to TP31 and the other channel to TP32. 2) Set the AC-GND-DC switch of the oscilloscope to DC and the oscilloscope to ALT mode. 3) Adjust R17 for equal DC levels.

2.7 TUNER/IF CIRCUIT

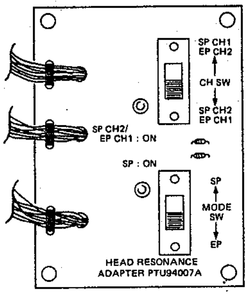
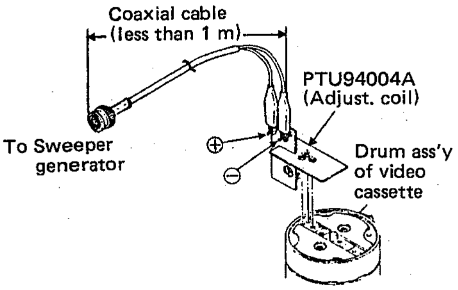
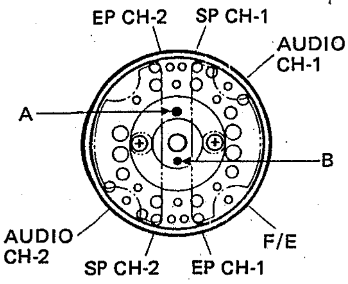
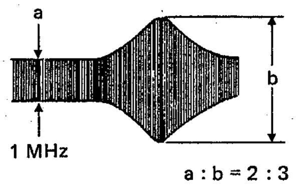
Note: *Unless otherwise noted, all test points and adjustments are located on the TUNER/IF board.*

<table>
<tr><th>No.</th><th>Item</th><th>Check Point</th><th>Adjustment Parts</th><th>Signal & Mode</th><th>Description</th></tr>
<tr><td colspan="5">Equipment required:
1. Oscilloscope
2. IF sweep signal generator with suitable markers (PIF, SIF, etc.)
3. Sweeper probe (sweep signal supply cable) as shown on the right.</td><td>
Sweeper probe
Fig. 2-7-1</td></tr>
<tr><td>1</td><td>VCO</td><td>IC1 pin 28</td><td>T2 (VCO)</td><td>• Sweep generator output: 70 dBμ (45.75 MHz)
• Tuner mode without antenna IN</td><td>1) Use a sweeper probe as shown in Fig. 2-7-1 and connect the sweep generator output to pin 1 of SAW 1.
Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope.
Connect the oscilloscope to pin 28 of IC1 (VIDEO OUT) and adjust T2 to align the waveform with the frequency marker as shown in Fig. 2-7-2.</td></tr>
<tr><td></td><td colspan="3">
VCO and sweep signal (beat)
Fig. 2-7-2</td><td>• TV broadcast
• Tuner mode</td><td>Alternate method:
1) Receive a color broadcast on a VHF-HI channel (7 to 13).
2) Adjust T2 to obtain a fine picture on the monitor.</td></tr>
<tr><td colspan="6">• Before the following adjustments:
1. Connect a cable to ANT IN and terminate TV OUT at 75 Ω.
2. Set a TV channel signal generator as follows.
Video : 70 dBμ/75 Ω, color bar 87.5% modulation
Audio : 62 dBμ/75 Ω, 1 kHz ± 25 kHz deviation</td></tr>
<tr><td>2</td><td>RF AGC</td><td>IF terminal of Front end</td><td>R21
(RF AGC)</td><td>• TV signal
• Tuner mode</td><td>1) Connect the oscilloscope to IF terminal of U/V Tuner (Front end). Adjust R21 for maximum level, then again adjust R21 for −8 dB gain.</td></tr>
<tr><td></td><td></td><td>Monitor</td><td>R21
(RF AGC)</td><td>• TV broadcast
• Tuner mode</td><td>Alternate method:
Note: <i>Adjust R21 (RF AGC) to correct for excess noise in the picture or when streaky cross interference occurs due to strong electrical fields.</i>
1) Adjust R21 to minimize noise or streaks on the TV screen.
2) Check for absence of abnormality on all channels.</td></tr>
</table>

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
3	AFC	CN3 pin 6 (TU/CTL board)	T3 (AFC)	• TV signal • Tuner mode	1) With AFC MODE to NORM, connect the oscilloscope to CN3 pin 6. 2) Set the oscilloscope to DC mode and adjust T3 to set the lower edge of the ripple waveform to 4.0 V.
			T3 (AFC)	• TV broadcast • Tuner mode • AFC MODE: NORM	**Alternate method:** 1) Receive a color broadcast on a VHF-HI channel (7 to 13). 2) With AFC MODE to NORM, connect the oscilloscope to CN3 pin 6. 3) Set the oscilloscope to DC mode and adjust T3 to set the lower edge of the ripple waveform to 4.0 V.
4	Sound det. (FM)	CN5 pin 1 (TU/CTL board)  Fig. 2-7-3 Adjustment circuit	T4	• TV signal • Tuner mode	1) Use an adjustment circuit as shown in Fig. 2-7-3 and with AFC to NORM, connect a distortion meter as shown in Fig. 2-7-3. 2) Adjust T4 for minimum distortion (less than 0.5%).
		CN5 pin 1 (TU/CTL board)	T4	• TV broadcast • Tuner mode	**Alternate method:** 1) Receive a color broadcast on a VHF-HI channel (7 to 13). Connect an oscilloscope to CN5 pin 1 of the IF (MAIN) board. 2) Adjust T4 for maximum level in audio sound.
5	Color level	CN2 pin 3 (TU/CTL board)  b a Y level = 1 Magenta level = 0.45 a : b = 1 : 0.45 Fig. 2-7-4	R40 (COLOR LEVEL)	• TV broadcast • Tuner mode	1) Supply a color bar signal on a VHF-HI channel (7 to 13) from a TV channel signal generator and select the channel corresponding to the generator. 2) With AFC to NORM, adjust R40 to produce signal waveform as shown in Fig. 2-7-4. **Alternate method:** 1) Receive a color broadcast on a VHF-Hi channel (7 to 13). 2) With AFC to NORM, adjust R40 so that the magenta level becomes 2/3 % of the sync. level.

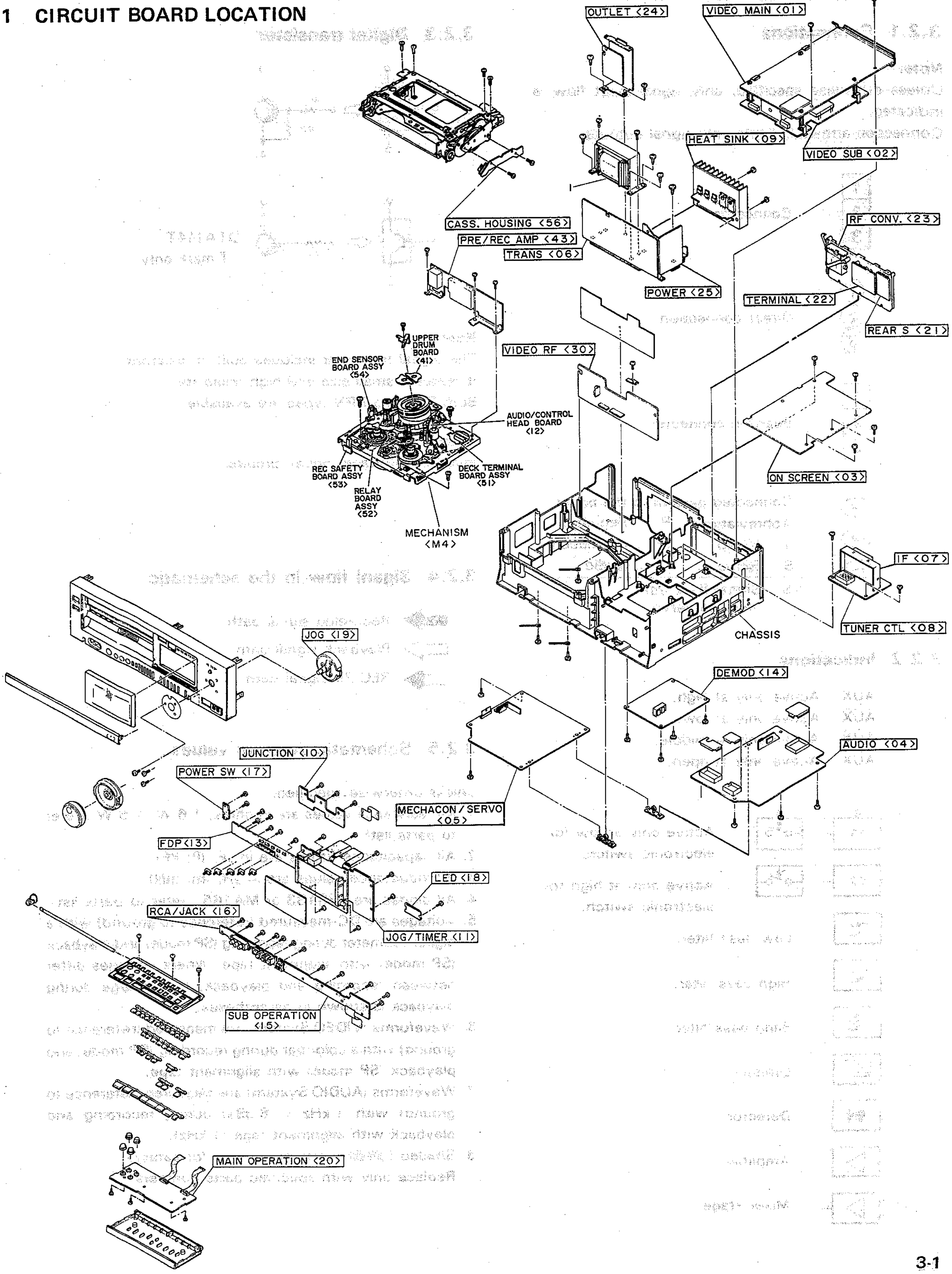
2.8 PRE/REC CIRCUIT

Note: *Unless otherwise noted, all test points and adjustments are located on the PRE/REC board.*

No.	Item	Check Point	Adjustment Parts	Signal & Mode	Description
1	Head resonance & Q  SP CH1 EP CH2 CH SW SP CH2 EP CH1 SP CH2/ EP CH1 : ON SP : ON SP MODE SW EP HEAD RESONANCE ADAPTER PTU94007A Fig. 2-8-1	TP6 (SP PB FM)	C18 (F) (CH-1) R19 (Q) (CH-1)	RF sweep	**Note:** *This adjustment is required only when flicker or black fringe noise appears after replacing the upper drum (video head).* 1) Disconnect four connectors of CN2, CN3, CN6 and CN8 from the PRE/REC board. Connect and use the head resonance adapter (PTU94007A). 2) Set the adjustment coil (PTU94004A) onto the upper drum as shown in Fig. 2-8-2. 3) Connect an oscilloscope to TP6 of the PRE/REC board. Supply a sweeper generator output to the adjustment coil as shown in Fig. 2-8-2, then adjust the sweeper generator gain so that the waveform doesn't distort at TP6.
	 Coaxial cable (less than 1 m) PTU94004A (Adjust. coil) To Sweeper generator ⊕ ⊖ Drum ass'y of video cassette Fig. 2-8-2			• MODE SW of the fixture: SP • CH SW of the fixture: SP CH-1 EP CH-2	4) Adjust C18 to set the CH-1 resonance point to 7.5 MHz. Use the control of the oscilloscope to position the 1 MHz region at graduation 2 of the oscilloscope scale. 5) Adjust R19 to position the 7.5 MHz portion at 3 of the oscilloscope graduation as shown in Fig. 2-8-4.
	– Installation –  EP CH-2 SP CH-1 AUDIO CH-1 A B AUDIO CH-2 SP CH-2 EP CH-1 F/E Fig. 2-8-3  a : b = 2 : 3 Fig. 2-8-4		C19 (F) (CH-2) R21 (Q) (CH-2)	• CH SW of the fixture: SP CH-2 EP CH-1	6) Change the adjustment coil to CH-2 position, and in the same manner adjust C19 and R21 for CH-2.
		TP36 (EP PB FM)	C20 (F) (CH-1) R26 (Q) (CH-1)	• MODE SW of the fixture: EP • CH SW of the fixture: SP CH-2 EP CH-1	1) Connect an oscilloscope to TP36 of the PRE/REC board. 2) Repeat the above steps (1 to 5) for the EP mode. Adjust resonance with C20 and Q with R26.
			C22 (F) (CH-2) R34 (Q) (CH-2)	• CH SW of the fixture: SP CH-1 EP CH-2	3) Similarly, perform adjustment in the same manner as for CH-1. Adjust resonance with C22 and Q with R34.

SECTION 3
CHARTS AND DIAGRAMS

3.1 CIRCUIT BOARD LOCATION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VIDEO MAIN <01>
HEAT SINK <09>
VIDEO SUB <02>
CASS. HOUSING <56>
PRE/REC AMP <43>
TRANS <06>
RF CONV. <23>
POWER <25>
TERMINAL <22>
REAR S <21>
UPPER DRUM BOARD <41>
END SENSOR BOARD ASSY <54>
VIDEO RF <30>
AUDIO/CONTROL HEAD BOARD <12>
REC SAFETY BOARD ASSY <53>
DECK TERMINAL BOARD ASSY <51>
RELAY BOARD ASSY <52>
ON SCREEN <03>
MECHANISM <M4>
IF <07>
CHASSIS
TUNER CTL <08>
JOG <19>
DEMOD <14>
AUDIO <04>
JUNCTION <10>
POWER SW <17>
MECHACON/SERVO <05>
FDP <13>
LED <18>
RCA/JACK <16>
JOG/TIMER <11>
SUB OPERATION <15>
MAIN OPERATION <20>

3.2 GENERAL INFORMATIONS

3.2.1 Connections

Note:
Unless otherwise specified, only signal input flow is indicated.
Connection arrows indicate only signal outputs.

1 2 3 : Connector

① ② ③ : Direct connection

1 2 3 : Board in connector

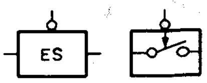
VS MS SM : Connected pattern in the board.

Abbreviations	R : Regulator
V : Video	M : Mechacon
S : Servo	A : Audio

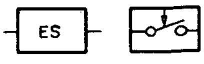
VS : Signal flow from video to servo.

3.2.2 Indications

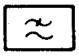
AUX : Active only at high.
$\overline{\text{AUX}}$: Active only at low.
$\bar{\text{A}}\bar{\text{U}}\bar{\text{X}}$: Active only at middle.
$\bar{\text{A}}\text{U}\bar{\text{X}}$: Active only at open.



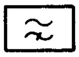
: Active only at low for electronic switch.



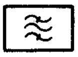
: Active only at high for electronic switch.



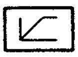
: Low pass filter.



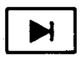
: High pass filter.



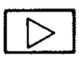
: Band pass filter.



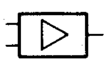
: Limiter.



: Detector

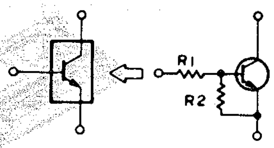


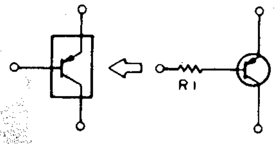
: Amplifier.



: Mixer stage.

3.2.3 Digital transistor





DTA114T
T mark only

Note:
The digital transistor includes built in resistors.
It features small size and high reliability.
Both PNP and NPN types are available.

Uses:
Inverter, Interface, driver circuits.

3.2.4 Siganl flow in the schematic

➡ Recording signal path
⇨ Playback signal path
➡ REC/PB signal path

3.2.5 Schematic diagram values

Unless otherwise specified.

1. All resistance values are in ohms, 1/6 W, 1/8 W, (refer to parts list).
2. All capacitance values are in μF, (P; PF).
3. All inductance values are in μH, (m; mH).
4. All diodes are 1SS133 or MA165, (refer to parts list).
5. Voltages are DC-measured (reference to ground) with a digital voltmeter during recording (SP mode) and playback (SP mode) with alignment tape. Where voltages differ between recording and playback, the voltage during playback is shown in parentheses.
6. Waveforms (VIDEO System) are measured (reference to ground) with a color bar during recording (SP mode) and playback (SP mode) with alignment tape.
7. Waveforms (AUDIO System) are measured (reference to ground) with 1 kHz (−8 dBs) during recording and playback with alignment tape (1 kHz).
8. Shaded (▨) parts are critical for safety. Replace only with specified parts numbers.

3.3 ABBREVIATIONS USED IN THE SCHEMATIC DIAGRAMS

A
AC : Alternating Current
ACC : Automatic Color Control
ACCEL : Acceleration
A/CTL : Audio/Control
ADC : Analog to Digital Converter
ADD : Adder
ADRS : Address
ADJ : Adjustment
A DUB : Audio Dubbing
AE : Audio Erase
AEF : Automatic Editing Function
AFC : Automatic Frequency Control
AFT : Automatic Fine Tuning
AGC : Automatic Gain Control
AH : Audio Head
AL : After Loading
ALC : Automatic Light Compensation
Automatic Level Control
AM : Amplitude Modulation
AMP : Amplifier
ANT : Antenna
APC : Automatic Pedestal Control
Automatic Phase Control
APL : Average Picture Level
A/S/M : Audio/Servo/Mechacon
ASS'Y : Assembly
ATT : Attenuator
AUD : Audio
AUTO : Automatic
AUX : Auxiliary

B
B : Base
BAL : Balance
BATT : Battery
BFP : Burst Flag Pulse
BIT : Binary Digit
BLK : Black, Blanking
BLU : Blue
BILING : Bilingual
BPF : Bandpass Filter
BRK : Brake
BRN : Brown
BT : Band Tuning
BUFF : Buffer
BW or B/W : Black and White

C
C : Capacitance, Collector, Color
CAP : Capstan, Capacitor
CAR : Carrier
CARR : Carrier
CASS : Cassette
CCD : Charge Coupled Device
CCT : Circuit
CD : Count Down
CE : Chip Enable
CF : Ceramic Filter
CH : Channel
CHG : Charge
CHROMA : Chrominance
CLK : Clock
CLR : Clear
CMD : Command
CNT : Count, Counter
COL : Color
COM : Common
COMB : Combination
Comb Filter
COMP : Comparator
Composite
Compensation
CONN : Connector
CONV : Converter
CP : Circuit Protector
Clamp Pulse
CPC : Capstan Phase Control
CTL : Control

D
D : Drum, Digital, Diode, Drain
DAC : Digital to Analog Converter
dB : Decibel
DC : Direct Current
DEC : Decoder
DEMOD : Demodulator
DEMUX : Demultiplexer
DET : Detector
DEV : Deviation
DIF : Differential
DISCR : Discriminator
DL : Delay Line
DOC : Dropout Compensator
DOD : Drop Out Detector
DPC : Drum Phase Control

E
E : Edit, Emitter
E-E : Electric to Electric
EF : Emitter-Follower
EMP : Emphasis
EN : Enable
ENC : Encoder
ENV : Envelope
EP : Extended Play
EQ : Equalizer
ES : Electronic Switch
ESNS : End Sensor
EXP : Expander
EXT : External

F
F : Farad, Fuse
F ADV : Frame Advance
FDP : Fluorescent Display Panel
FE : Full Erase
FET : Field Effect Transistor
FF : Fast Forward
Flipflop
FG : Frequency Generator
FM : Frequency Modulation
FMA : FM Audio
FR : Full Recording, Frame, Fusible Resistor
FREQ : Frequency
F-V CONV : Frequency to Voltage Converter
FWD : Forward
FWD S : Forward Search

G
G : Green, Gate, Grid
GEN : Generator
GND : Ground
GRN : Green
GRY : Gray

H
H : High, Henry, Hour
HG : Hall Generator
HPF : Highpass Filter
Hz : Herz

I
IC : Integrated Circuit
ID : Identification (Pulse)
IF : Intermediate Frequency
IFR : Infrared
IFT : Intermediate Frequency Transformer
IND : Indicator
INH : Inhibit
INS : Insert
INT : Internal, Interrupt
INV : Inverter
I/O : Input/Output
IR : Infrared

L
L : Low, Left
LIM : Limiter
LIN : Linearity
LOAD : Loading (Cassette)
LP : Long Play
LPF : Lowpass Filter

M
M : Motor, Mega
MAX : Maximum
MDA : Motor Drive Amplifier
MECHACON : Mechanism Control
MI : Multiintroduce
MIC : Microphone
MIN : Minimum
MIX : Mixer, Mixing
MMV : Monostable Multivibrator
MOD : Modulation, Modulator
MODEM : Modulator-Demodulator
MON : Monitor
MPX : Multiplexer, Multiplex
MS : Mode Select

N
NAND : Not-And
NC : Not Connected, Normally Closed
NFB : Negative Feedback
NLN : Non-Linear
NO : Normally Open
NOR : Normal, Not-Or
NR : Noise Reduction

O
OP : Operation
OPAMP : Operational Amplifier
ORN : Orange
OSC : Oscillator

P
PB : Playback
PC : Photocoupler, Pulse Counter
PCM : Pulse Code Modulation
PG : Pulse Generator
PGM : Program
PI : Photo Interrupter
PIF : Picture Intermediate Frequency
PLA : Programmable Logic Array
PLL : Phase Locked Loop
POS : Position
p-p : Peak-to-Peak
PREAMP : Preamplifier
P/S : Pause/Still
PSC : Pulse Swallowing Control
PU : Pickup
PUT : Programmable Unijunction Transistor
PWM : Pulse Width Modulation
PWR : Power

Q
Q : Quality Factor

R
R : Red, Right
RA : Resistor Array
RAE : Random Access Enable
RAM : Random Access Memory
REC : Recording
REF : Reference
REG : Regulated, Regulator
REM : Remote
REMOCON : Remote Control (Unit)
REV : Reverse
REV S : Reverse Search
REW : Rewind
R/P : Record/Playback
RPT : Repeat
RST : Reset
RT : Rotary Transformer
RUN : Running
RY : Relay

S
SAW : Sawtooth, Surface Acoustic Wave
SC : Subcarrier, Simulcast
SCH : Search
SEL : Select, Selector
SENS : Sensor
SEP : Separator
SF : Source Follower
SFF : Short Fast Forward
SIF : Sound Intermediate Frequency
SHARP : Sharpness
SN : Signal to Noise Ratio
SOL : Solenoid
SP : Standard Play
SREV : Search Reverse
SREW : Short Rewind
S/S : Slow/Still
SSG : Sync Signal Generator
SSNS : Start Sensor
STD : Strobe Data, Standard
SUP : Supply
SW : Switch
SWD : Switched
SYNC : Synchronization

T
TF : Thermal Fuse
TIM : Timing
TK : Tracking
TNR : Tuner
TP : Test Point
TPZD : Trapezoid
TR : Transistor, Trimmer
TRANS : Transformer
TU : Take-up

U
UL : Unloading
UNREG : Unregulated
UNSW : Unswitched

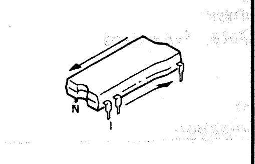
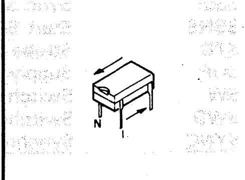
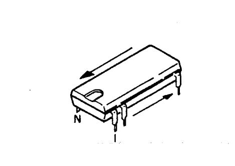
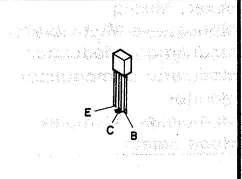
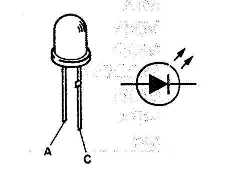
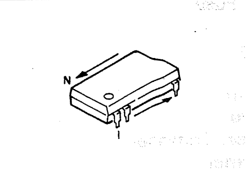
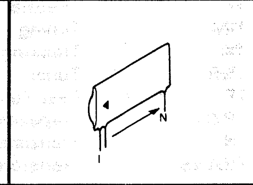
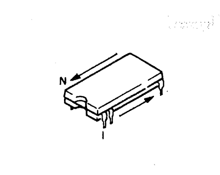
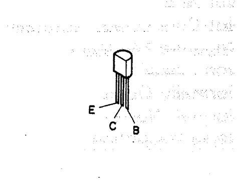
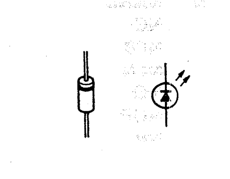
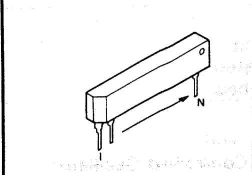
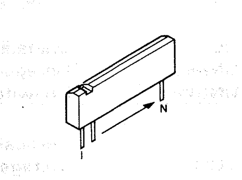
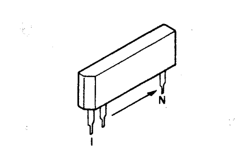
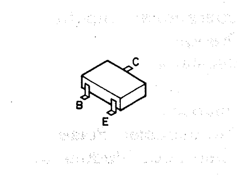
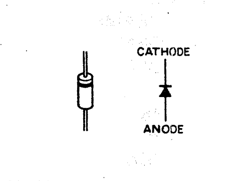
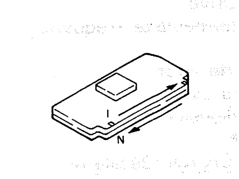
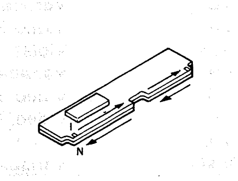
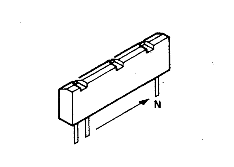
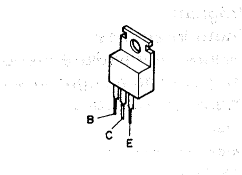
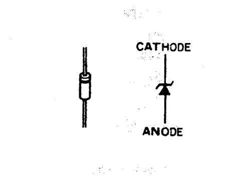
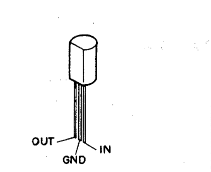
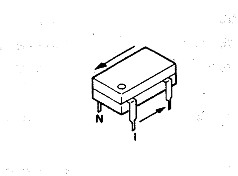
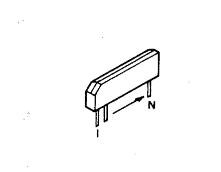
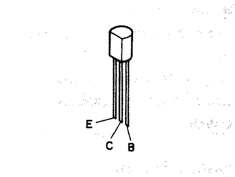
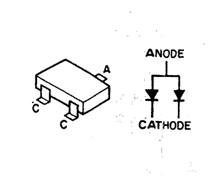
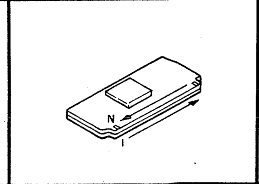
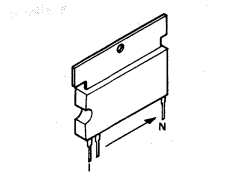
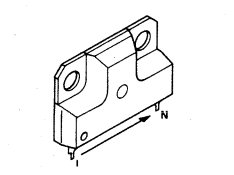
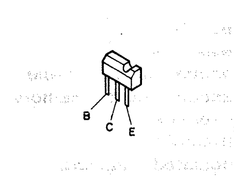
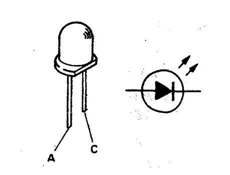
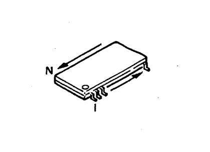
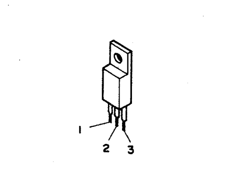
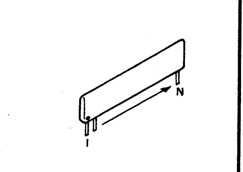
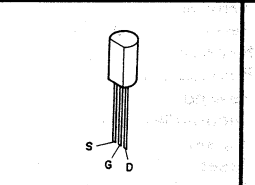
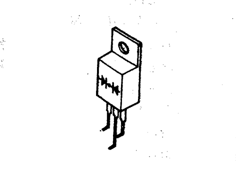
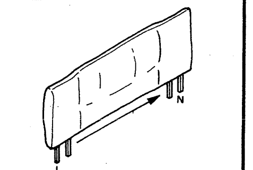
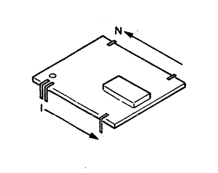
V
V : Vertical, Volt
VCO : Voltage Controlled Oscillator
VD : Vertical Drive
VIF : Video Intermediate Frequency
VLT : Violet
VR : Variable Resistor
VS : Video and Sync
V/T : Video/Television
V/U : VHF/UHF
VXO : Variable Crystal Oscillator

W
W : Watt
W & D : White and Dark
WHT : White

X
XTAL : Crystal

Y
Y : Luminance
YEL : Yellow

3.4 MAIN TYPES OF ACTIVE AND PACKAGE CIRCUITS

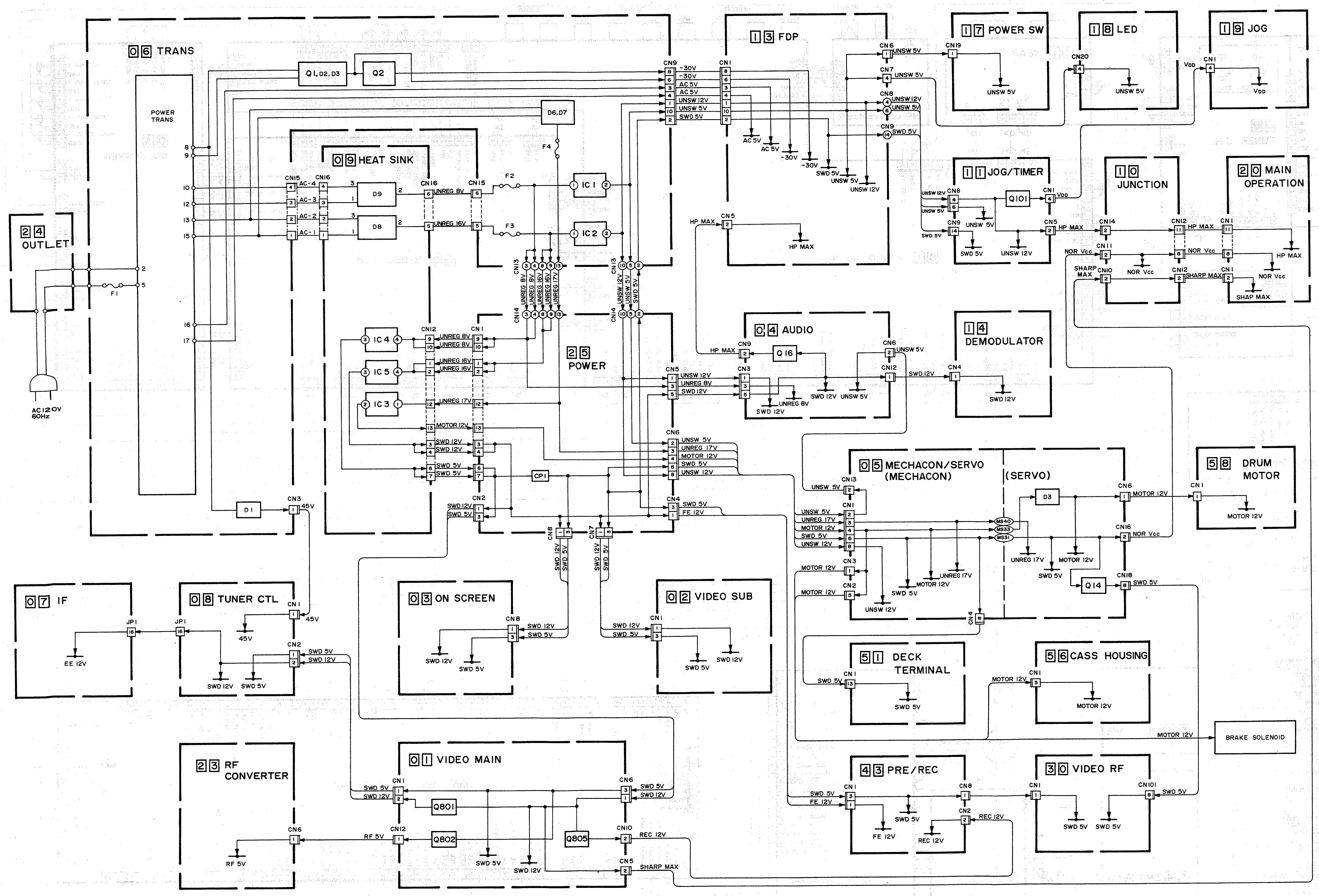
	Integrated Circuit			**Transistor**	**Diode**
	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					

NAME		L
IC		
A	AN2275NK	1A
	AN3211K	1A
	AN3380NK	1A
	AN3926K	1A
	AN6040	3C
	AN6392	3A
B	BA236	3B
	BA6222	2B
	BA6259N	4C
	BA7036LS	3B
	BA7038	1C
	BA7057	1C
	BA7233	1C
	BA7765AS	1C
	BU3758AS	1C
	BU4030B	1C
	BU4066B	1C
	BU4081B	1C
C	CXA1101P	1C
	CXA1126S	1A
H	HD49722NT	2A
I	IC-PST523H-2	5A
	IC-PST529D-2	7C
L	LA7220	1A
	LM2940CT-5-0	7B
M	MB88724B-124	1C
	MN12C25D	3C
	MN3801	1A
	MSC1146BRS	1C
	M50253P	1C
	M50255P	1C
	M50938A-300SP	1C
	M50938E-808SP	1C
	M51131L	3C
	M51365SP	1A
	M51647SP	1A
	M51722P	2C
	M5218P	1B
	M5223P	1B
	M5239L	3B
	M5278L56	5A
	M54647L	6C
N	NJM2217L	1C
	NJM2220S	5C
	NJM2233AD	5B
	NJM2234D	5B
P	PB20200A	4B
	PB20201A	4A
	PB20202A	6A
	PB20220A	6A
	PB20225A	4B
	PB20262A	4A

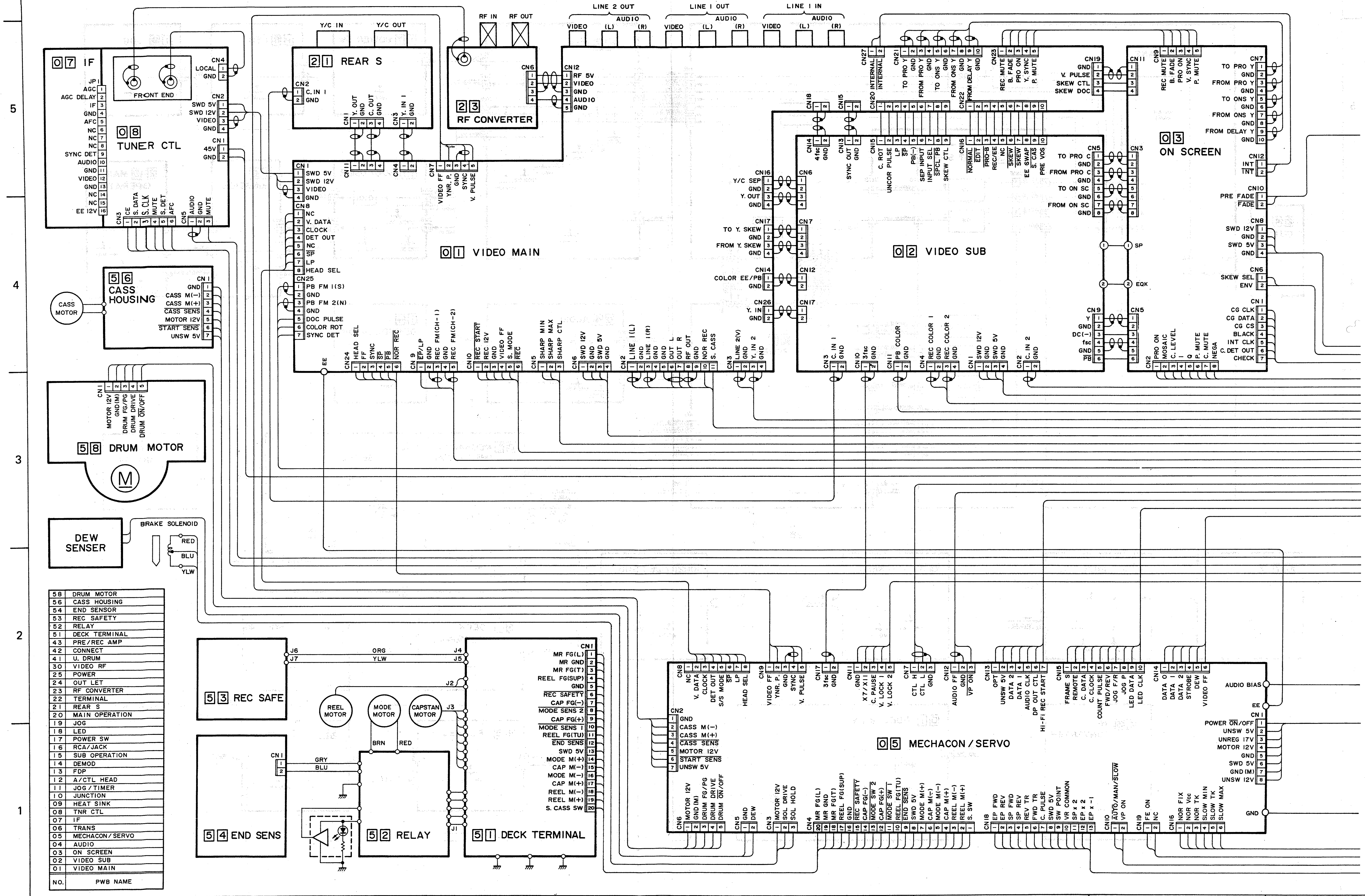
NEME		L
	PU22198C	4B
	PU22517C	4A
S	STR90050	6C
	STR90120	6C
T	TA78DL05AP	7B
	TA78L009AP	5A
	TA8609P	1A
	TC4066BP	1A
	TC74HC02AP	1A
	TC74HC04AP	1A
	TC74HC4053AP	1A
	TC74HC4066P	1A
	TD6358P	1A
U	UPC324C	1A
	UPC339C	1A
	UPC358C	1B
	UPC393C	5B
	UPC7805H	7B
	UPC7812H	7B
	UPD4069UBC	7A
	UPD4081BC	1A
	UPD4314C-55	1C
	UPD74HC239C	1A
	UPD75P108CW-030	1A
	UPD75104CW-136	1A
	UPD75216ACW-270	1A
V	VC2047	1A
	VC2048	1A
	VC2053	1C
	VC2069	
	VC2070	
	VC2071	8A
	VC2072	8B
TRANSISTOR		
DTA	DTA114YS	2D
	DTA124EK	3D
	DTA124ES	1D
	DTA143ES	1D
	DTA144ES	1D
	DTA144WS	1D
DTC	DTC114ES	1D
	DTC124ES	1D
	DTC143TS	1D
	DTC144EK	3D
	DTC144ES	1D
	DTC144WS	1D
U	UN4319VI	1D
2SA	2SA1037K	3D
	2SA1309	1D
	2SA1309S	1D
	2SA720	2D

NAME		L
	2SA854S	1D
	2SA933S	1D
2SB	2SB1010	1D
	2SB1030A	1D
	2SB1030	1D
	2SB1186	4D
	2SB810HJ	1D
2SC	2SC1317	2D
	2SC1740S	1D
	2SC1741S	1D
	2SC1983R	5D
	2SC2412K	3D
	2SC3070	5D
	2SC3311A	1D
	2SC3354	6D
	2SC3399	1D
	2SC536SPA	1D
2SD	2SD1330S	6D
	2SD1450S	1D
	2SD1468S	7D
	2SD1809	5D
	2SD639	6D
– DIODE –		
D	DAN202K	3E
	DAP202K	5E
E	E-452-2	4E
	ERA81-004	3E
F	FMM-22S	7E
H	HZS4.3EB2	4E
	HZS7.5EB2	4E
	HZS8.2EB2	4E
	HZ30-2L	4E
	HZ30-2	4E
	HZ5C2	4E
L	LTZ-MR15	2E
M	MA165	3E
	MTZ10D	4E
	MTZ5.6B	4E
O	OA90	3E
S	SLR-34DC3F	1E
	SLR-34MC3F	6E
	SLR-34VC3F	6E
	SLR-37VR3F	1E
U	UZ8.2BSC	4E
1	1SS133	3E
	1SS133HV	3E
	11ES2	3E
	11E2	3E

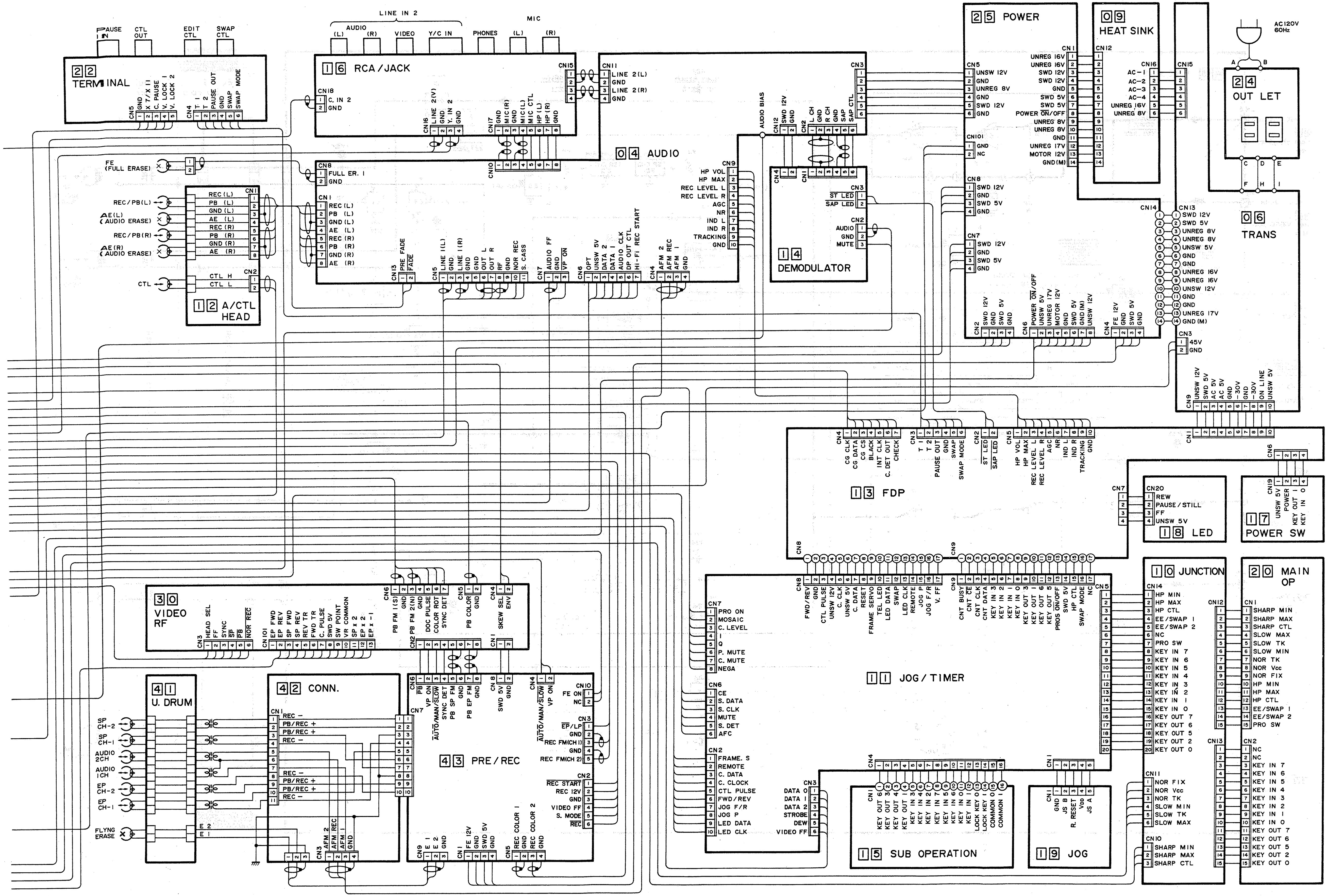
3.5 POWER SYSTEM BLOCK DIAGRAM


06 TRANS
POWER TRANS
Q1, D2, D3
Q2
D6, D7
F4
09 HEAT SINK
CN15
CN16
AC-4
AC-3
AC-2
AC-1
D9
D8
UNREG 8V
UNREG 16V
F2
F3
IC 1
IC 2
24 OUTLET
F1
AC120V
60Hz
CN13
CN14
UNREG 8V
UNREG 16V
UNREG 17V
UNSW 12V
UNSW 5V
SWD 5V
25 POWER
IC 4
IC 5
IC 3
CN12
CN1
MOTOR 12V
SWD 12V
SWD 5V
CP1
D1
CN3
45V
CN2
CN4
CN5
CN6
UNSW 12V
UNREG 8V
SWD 12V
UNSW 5V
UNREG 17V
MOTOR 12V
FE 12V
CN8
CN7
CN9
-30V
AC 5V
13 FDP
HP MAX
17 POWER SW
18 LED
19 JOG
VDD
11 JOG/TIMER
Q101
10 JUNCTION
20 MAIN OPERATION
NOR Vcc
SHARP MAX
04 AUDIO
Q16
14 DEMODULATOR
05 MECHACON/SERVO (MECHACON)
(SERVO)
D3
Q14
MS40
MS33
MS31
58 DRUM MOTOR
07 IF
JP1
EE 12V
08 TUNER CTL
03 ON SCREEN
02 VIDEO SUB
51 DECK TERMINAL
56 CASS HOUSING
BRAKE SOLENOID
23 RF CONVERTER
RF 5V
01 VIDEO MAIN
Q801
Q802
Q805
CN10
REC 12V
43 PRE/REC
30 VIDEO RF
CN101

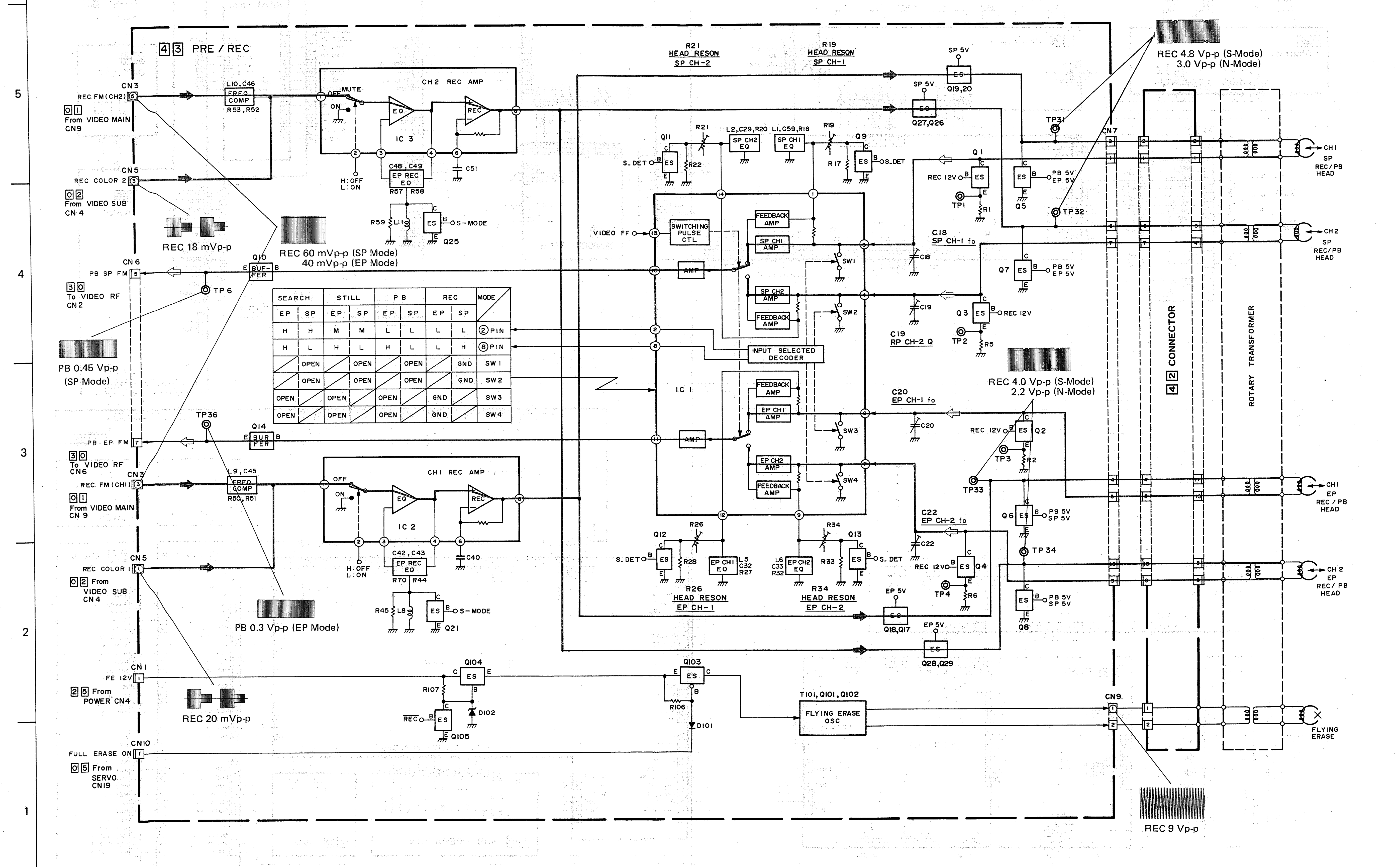
3.6 BOARD INTERCONNECTIONS


07 IF
08 TUNER CTL
FRONT END
21 REAR S
Y/C IN
Y/C OUT
23 RF CONVERTER
RF IN
RF OUT
LINE 2 OUT
LINE 1 OUT
LINE 1 IN
VIDEO
AUDIO
(L)
(R)
01 VIDEO MAIN
02 VIDEO SUB
03 ON SCREEN
56 CASS HOUSING
CASS MOTOR
58 DRUM MOTOR
M
DEW SENSER
BRAKE SOLENOID
RED
BLU
YLW
53 REC SAFE
54 END SENS
52 RELAY
51 DECK TERMINAL
REEL MOTOR
MODE MOTOR
CAPSTAN MOTOR
ORG
YLW
GRY
BLU
BRN
RED
05 MECHACON / SERVO
AUDIO BIAS
EE
GND
SP
EQK
A
B
C
D
E
F
G
H
1
2
3
4
5
6

58	DRUM MOTOR
56	CASS HOUSING
54	END SENSOR
53	REC SAFETY
52	RELAY
51	DECK TERMINAL
43	PRE/REC AMP
42	CONNECT
41	U. DRUM
30	VIDEO RF
25	POWER
24	OUT LET
23	RF CONVERTER
22	TERMINAL
21	REAR S
20	MAIN OPERATION
19	JOG
18	LED
17	POWER SW
16	RCA/JACK
15	SUB OPERATION
14	DEMOD
13	FDP
12	A/CTL HEAD
11	JOG/TIMER
10	JUNCTION
09	HEAT SINK
08	TNR CTL
07	IF
06	TRANS
05	MECHACON/SERVO
04	AUDIO
03	ON SCREEN
02	VIDEO SUB
01	VIDEO MAIN
NO.	PWB NAME


22 TERMINAL
PAUSE IN
CTL OUT
EDIT CTL
SWAP CTL
CN5 GND X T/X I1 C. PAUSE V. LOCK 1 V. LOCK 2
CN4 T 1 T 2 PAUSE OUT GND SWAP SWAP MODE
LINE IN 2
AUDIO (L) (R)
VIDEO
Y/C IN
PHONES
MIC (L) (R)
16 RCA/JACK
CN18 C. IN 2 GND
CN15
CN16 LINE 2(V) GND Y IN 2 GND
CN17 GND MIC (R) GND MIC (L) MIC CTL HP (L) HP (R) GND
CN11 LINE 2(L) GND LINE 2(R) GND
CN3
04 AUDIO
AUDIO BIAS
CN8 FULL ER. 1 GND
CN1 REC (L) PB (L) GND (L) AE (L) REC (R) PB (R) GND (R) AE (R)
CN9 HP VOL HP MAX REC LEVEL L REC LEVEL R AGC NR IND L IND R TRACKING GND
CN13 PRE FADE FADE
CN5 LINE 1(L) GND LINE 1(R) GND GND OUT L OUT R RF GND NOR REC S. CASS
CN7 AUDIO FF GND VP ON
CN6 OPT UNSW 5V DATA 2 DATA 1 AUDIO CLK DP OUT CTL HI-FI REC START
CN4 AFM 2 AFM REC AFM 1 GND
CN12 SWD 12V GND
CN2 L CH GND R CH GND SAP SAP CTL
FE (FULL ERASE)
REC/PB(L)
AE(L) (AUDIO ERASE)
REC/PB(R)
AE(R) (AUDIO ERASE)
CTL
CN1 REC (L) PB (L) GND (L) AE (L) REC (R) PB (R) GND (R) AE (R)
CN2 CTL H CTL L
12 A/CTL HEAD
14 DEMODULATOR
CN4 CN1
CN3 ST LED SAP LED
CN2 AUDIO GND MUTE
25 POWER
CN1 UNREG 16V UNREG 16V SWD 12V SWD 12V GND SWD 5V SWD 5V POWER ON/OFF UNREG 8V UNREG 8V GND UNREG 17V MOTOR 12V GND(M)
CN5 UNSW 12V GND UNREG 8V GND SWD 12V GND
CN101 GND NC
CN8 SWD 12V GND SWD 5V GND
CN7 SWD 12V GND SWD 5V GND
CN2 SWD 12V GND SWD 5V GND
CN6 POWER ON/OFF UNSW 5V UNREG 17V MOTOR 12V GND SWD 5V GND(M) UNSW 12V
CN4 FE 12V GND SWD 5V GND
09 HEAT SINK
CN12 CN16 AC-1 AC-2 AC-3 AC-4 UNREG 16V UNREG 8V
CN15
CN14
AC120V 60Hz
A B
24 OUT LET
C D E
F H I
06 TRANS
CN13 SWD 12V SWD 5V UNREG 8V UNREG 8V UNSW 5V GND GND UNREG 16V UNREG 16V UNSW 12V GND GND UNREG 17V GND (M)
CN3 45V GND
CN9 UNSW 12V SWD 5V AC 5V GND -30V GND -30V ON LINE UNSW 5V
CN1
CN4 CG CLK CG DATA CG CS BLACK INT CLK C. DET OUT CHECK
CN3 T 1 T 2 PAUSE OUT GND SWAP SWAP MODE
CN2 ST LED SAP LED
CN5 HP VOL HP MAX REC LEVEL L REC LEVEL R AGC NR IND L IND R TRACKING GND
13 FDP
CN6
CN7
CN20 REW PAUSE/STILL FF UNSW 5V
18 LED
CN19 UNSW 5V POWER KEY OUT 0 KEY IN
17 POWER SW
CN8 CN9
30 VIDEO RF
CN3 HEAD SEL FF SYNC SP PB NOR REC
CN101 EP FWD EP REV SP FWD SP REV REV TR FWD TR C. PULSE SWD 5V SW POINT SW COMMON SP x 2 EP x 2 EP x -1
CN6 PB FM 1(S) GND
CN2 PB FM 2(H) GND DOC PULSE COLOR ROT SYNC DET
CN5 PB COLOR GND
CN4 SKEW SEL ENV
CN1
11 JOG/TIMER
CN8 FWD/REV GND CTL PULSE UNSW 12V UNSW 5V C. CLK C. DATA RESET FRAME SERVO TEL LED LED DATA SWAP LED CLK REMOTE JOG P JOG F/R V. FF
CN9 CNT BUSY CNT CE CNT CLK CNT DATA KEY IN 3 KEY IN 1 KEY IN 0 KEY OUT 3 KEY OUT 1 KEY OUT 6 KEY OUT 5 PROS ON/OFF SWD 5V HP CTL SWAP MODE NC
CN7 PRO ON MOSAIC C. LEVEL I Q P. MUTE C. MUTE NEGA
CN6 CE S. DATA S. CLK MUTE S. DET AFC
CN2 FRAME. S REMOTE C. DATA C. CLOCK CTL PULSE FWD/REV JOG F/R JOG P LED DATA LED CLK
CN3 DATA 0 DATA 1 DATA 2 STROBE DEW VIDEO FF
CN4
CN1
CN5
15 SUB OPERATION
CN1 KEY OUT 6 KEY OUT 3 KEY OUT 4 KEY OUT 1 KEY IN 3 KEY IN 4 KEY IN 7 KEY IN 8 KEY IN 5 KEY IN 2 KEY IN 1 KEY IN 0 LOCK KEY 1 LOCK KEY 0 COMMON 0 COMMON 1
19 JOG
CN1 GND JS B R. RESET Vdd JS A
10 JUNCTION
CN14 HP MIN HP MAX HP CTL EE/SWAP 1 EE/SWAP 2 NC PRO SW KEY IN 7 KEY IN 6 KEY IN 5 KEY IN 4 KEY IN 3 KEY IN 2 KEY IN 1 KEY IN 0 KEY OUT 7 KEY OUT 6 KEY OUT 5 KEY OUT 2 KEY OUT 0
CN12
CN13
CN11 NOR FIX NOR Vcc NOR TK SLOW MIN SLOW TK SLOW MAX
CN10 SHARP MIN SHARP MAX SHARP CTL
20 MAIN OP
CN1 SHARP MIN SHARP MAX SHARP CTL SLOW MAX SLOW TK SLOW MIN NOR TK NOR Vcc NOR FIX HP MIN HP MAX HP CTL EE/SWAP 1 EE/SWAP 2 PRO SW
CN2 NC NC KEY IN 7 KEY IN 6 KEY IN 5 KEY IN 4 KEY IN 3 KEY IN 2 KEY IN 1 KEY IN 0 KEY OUT 7 KEY OUT 6 KEY OUT 5 KEY OUT 2 KEY OUT 0
41 U. DRUM
SP CH-2
SP CH-1
AUDIO 2CH
AUDIO 1CH
EP CH-2
EP CH-1
FLYNG ERASE
E 2 E 1
42 CONN.
CN1 REC − PB/REC + PB/REC + REC − REC − PB/REC + PB/REC + REC −
CN3 AFM 2 AFM REC AFM 1 GND
43 PRE/REC
CN6 PB FE
CN7 AUTO/MAN/SLOW SYNC DET PB SP FM GND PB EP FM GND
CN8 SWD 5V GND
CN4 AUTO/MAN/SLOW VP ON
CN10 FE ON NC
CN3 EP/LP GND REC FM(CH 1) GND REC FM(CH 2)
CN2 REC START REC 12V GND VIDEO FF S. MODE REC
CN9 E 1 E 2 GND
CN1 FE 12V GND SWD 5V GND
CN5 REC COLOR 1 GND REC COLOR 2 GND
I
J
K
L
M
N
O
P

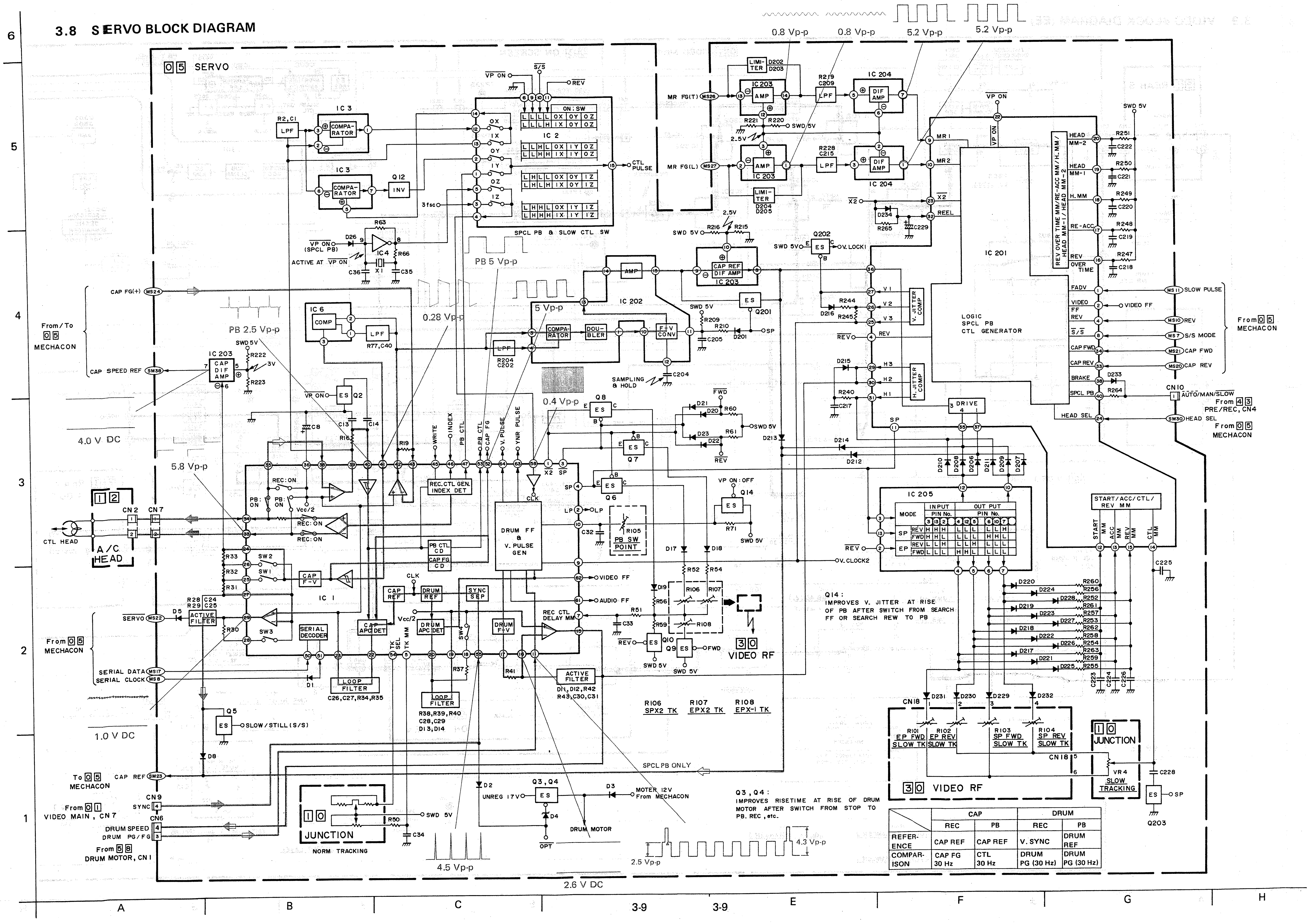
3.7 PRE/REC BLOCK DIAGRAM



4 3 PRE / REC
CN3
REC FM(CH2)
0 1 From VIDEO MAIN CN9
CN5
REC COLOR 2
0 2 From VIDEO SUB CN 4
REC 18 mVp-p
REC 60 mVp-p (SP Mode)
40 mVp-p (EP Mode)
L10, C46
FREQ COMP
R53, R52
CH 2 REC AMP
MUTE
OFF
ON
EQ
REC
IC 3
H: OFF
L: ON
C48, C49
EP REC EQ
R57 R58
R59
L11
ES
S-MODE
Q25
C51
CN 6
PB SP FM
3 0 To VIDEO RF CN 2
TP 6
Q10
BUF-FER
PB 0.45 Vp-p
(SP Mode)
TP36
Q14
BUR FER
PB EP FM
3 0 To VIDEO RF CN6
CN3
REC FM(CH1)
0 1 From VIDEO MAIN CN 9
L9, C45
FREQ COMP
R50, R51
CH1 REC AMP
IC 2
C42, C43
EP REC EQ
R70 R44
R45
L8
Q21
C40
CN5
REC COLOR 1
0 2 From VIDEO SUB CN 4
PB 0.3 Vp-p (EP Mode)
CN1
FE 12V
2 5 From POWER CN4
REC 20 mVp-p
CN10
FULL ERASE ON
0 5 From SERVO CN19
Q104
R107
D102
REC
Q105
Q103
R106
D101
T101, Q101, Q102
FLYING ERASE OSC
R21 HEAD RESON SP CH-2
R19 HEAD RESON SP CH-1
SP 5V
Q19,20
Q27,Q26
Q11
S. DET
R22
R21
L2, C29, R20
SP CH2 EQ
L1, C59, R18
SP CH1 EQ
R19
R 17
Q9
VIDEO FF
SWITCHING PULSE CTL
AMP
FEEDBACK AMP
SP CH1 AMP
SP CH2 AMP
SW1
SW2
SW3
SW4
INPUT SELECTED DECODER
IC 1
EP CH1 AMP
EP CH2 AMP
Q12
R28
R26
EP CH1 EQ
L5 C32 R27
L6 C33 R32
EP CH2 EQ
R33
R34
Q13
R26 HEAD RESON EP CH-1
R34 HEAD RESON EP CH-2
EP 5V
Q18, Q17
Q28, Q29
Q 1
REC 12V
TP1
R1
Q5
PB 5V
EP 5V
TP31
TP32
C18 SP CH-1 fo
C18
Q7
Q 3
TP2
R5
C19
C19 RP CH-2 Q
C20 EP CH-1 fo
C20
Q2
TP3
R2
TP33
Q6
SP 5V
C22 EP CH-2 fo
C22
TP 34
Q4
TP4
R6
Q8
REC 4.8 Vp-p (S-Mode)
3.0 Vp-p (N-Mode)
REC 4.0 Vp-p (S-Mode)
2.2 Vp-p (N-Mode)
CN7
CN9
4 2 CONNECTOR
ROTARY TRANSFORMER
CH1 SP REC/PB HEAD
CH2 SP REC/PB HEAD
CH1 EP REC/PB HEAD
CH 2 EP REC/PB HEAD
FLYING ERASE
REC 9 Vp-p
6
5
4
3
2
1
A
B
C
E
F
G
H

SEARCH		STILL		P B		REC		MODE
EP	SP	EP	SP	EP	SP	EP	SP	
H	H	M	M	L	L	L	L	② PIN
H	L	H	L	H	L	L	H	⑧ PIN
	OPEN		OPEN		OPEN		GND	SW 1
	OPEN		OPEN		OPEN		GND	SW 2
OPEN		OPEN		OPEN		GND		SW3
OPEN		OPEN		OPEN		GND		SW 4

3.8 SERVO BLOCK DIAGRAM

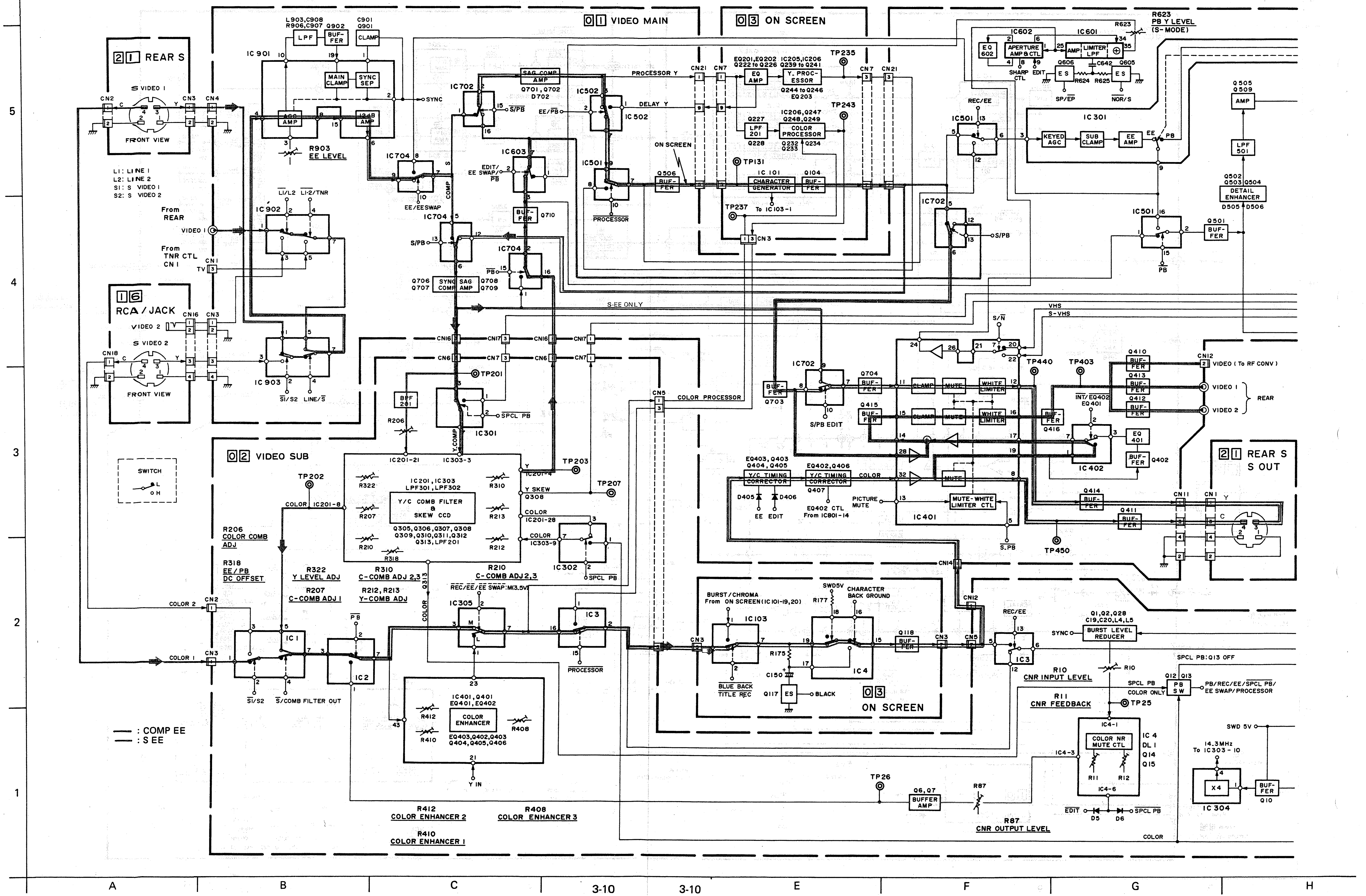

05 SERVO
IC 3
COMPARATOR
LPF
R2, C1
Q12
INV
IC 2
ON : SW
CTL PULSE
SPCL PB & SLOW CTL SW
VP ON
S/S
REV
3fsc
IC4
X1
R63
R66
C35
C36
D26
VP ON (SPCL PB)
ACTIVE AT VP ON
PB 5 Vp-p
PB 2.5 Vp-p
0.28 Vp-p
5 Vp-p
0.4 Vp-p
5.8 Vp-p
4.0 V DC
1.0 V DC
2.6 V DC
4.5 Vp-p
2.5 Vp-p
4.3 Vp-p
0.8 Vp-p
0.8 Vp-p
5.2 Vp-p
5.2 Vp-p
IC 6
COMP
R77, C40
IC 203
CAP DIF AMP
R222
R223
3V
SWD 5V
CAP FG(+)
CAP SPEED REF
From/To 05 MECHACON
VP ON
ES
Q2
C8
C13
C14
R16
R19
WRITE
INDEX
PB CTL
PB CTL
CAP FG
V. PULSE
YNR PULSE
REC CTL GEN. INDEX DET
REC: ON
PB: ON
Vcc/2
PB CTL CD
CAP FG CD
DRUM FF & V. PULSE GEN
CLK
X2
SP
LP
IC 1
CAP F-V
SW1
SW2
SW3
R31
R32
R33
R28 C24
R29 C25
R30
ACTIVE FILTER
D5
SERVO
SERIAL DATA
SERIAL CLOCK
From 05 MECHACON
SERIAL DECODER
D1
LOOP FILTER
C26, C27, R34, R35
CAP REF
CAP APC DET
DRUM REF
DRUM APC DET
SYNC SEP
TK SEL
TK MM
SW4
R37
LOOP FILTER
R38, R39, R40
C28, C29
D13, D14
DRUM F-V
R41
REC CTL DELAY MM
ACTIVE FILTER
D11, D12, R42
R43, C30, C31
VIDEO FF
AUDIO FF
V. CLOCK2
12
CN2
CN7
CTL HEAD
A/C HEAD
Q5
ES
SLOW/STILL (S/S)
D8
CAP REF
To 05 MECHACON
CN9
SYNC
From 01 VIDEO MAIN, CN7
CN6
DRUM SPEED
DRUM PG/FG
From 58 DRUM MOTOR, CN1
10 JUNCTION
NORM TRACKING
R50
C34
SWD 5V
D2
UNREG 17V
Q3, Q4
D3
D4
OPT
MOTOR 12V From MECHACON
DRUM MOTOR
SPCL PB ONLY
AMP
IC 202
COMPARATOR
DOUBLER
F-V CONV
LPF
R204 C202
C205
C204
SAMPLING & HOLD
R209
R210
D201
SP
Q201
Q8
Q7
Q6
D20
D21
D22
D23
R60
R61
SWD 5V
REV
FWD
VP ON : OFF
Q14
R71
PB SW POINT
R105
C32
C33
R51
D17
D18
D19
R52
R54
R56
R59
R106
R107
R108
Q9
Q10
30 VIDEO RF
R106 SPX2 TK
R107 EPX2 TK
R108 EPX-1 TK
LIMITER
D202
D203
D204
D205
IC 203
AMP
IC 204
DIF AMP
R219 C209
R228 C215
R220
R221
2.5V
MR FG(T)
MR FG(L)
X2
D234
R265
C229
R215
R216
Q202
V. LOCK1
CAP REF DIF AMP
IC 201
LOGIC SPCL PB CTL GENERATOR
MR1
MR2
REEL
V. JITTER COMP
H. JITTER COMP
V1
V2
V3
H3
H2
H1
D215
D216
R240
R244
R245
C217
DRIVE
D210
D208
D206
D211
D209
D207
D212
D213
D214
HEAD MM-2
HEAD MM-1
H. MM
RE-ACC
REV
OVER TIME
REV OVER TIME MM/RE-ACC MM/H. MM/HEAD MM-1/HEAD MM-2
R247
R248
R249
R250
R251
C218
C219
C220
C221
C222
FADV
VIDEO FF
FF
REV
S/S
CAP FWD
CAP REV
BRAKE
SPCL PB
HEAD SEL
D233
R264
SLOW PULSE
VIDEO FF
REV
S/S MODE
CAP FWD
CAP REV
CN10
AUTO/MAN/SLOW
From 43 PRE/REC, CN4
HEAD SEL
From 05 MECHACON
IC 205
MODE
INPUT PIN No.
OUT PUT PIN No.
SP
EP
START/ACC/CTL/REV MM
START MM
ACC MM
REV MM
CTL MM
C223
C224
C225
C226
C228
D217
D218
D219
D220
D221
D222
D223
D224
D225
D226
D227
D228
R252
R253
R254
R255
R256
R257
R258
R259
R260
R261
R262
R263
CN18
D229
D230
D231
D232
R101 EP FWD SLOW TK
R102 EP REV SLOW TK
R103 SP FWD SLOW TK
R104 SP REV SLOW TK
10 JUNCTION
VR4 SLOW TRACKING
Q203
SP
30 VIDEO RF
1
2
3
4
5
6
A
B
C
D
E
F
G
H

Q14 :
IMPROVES V. JITTER AT RISE OF PB AFTER SWITCH FROM SEARCH FF OR SEARCH REW TO PB

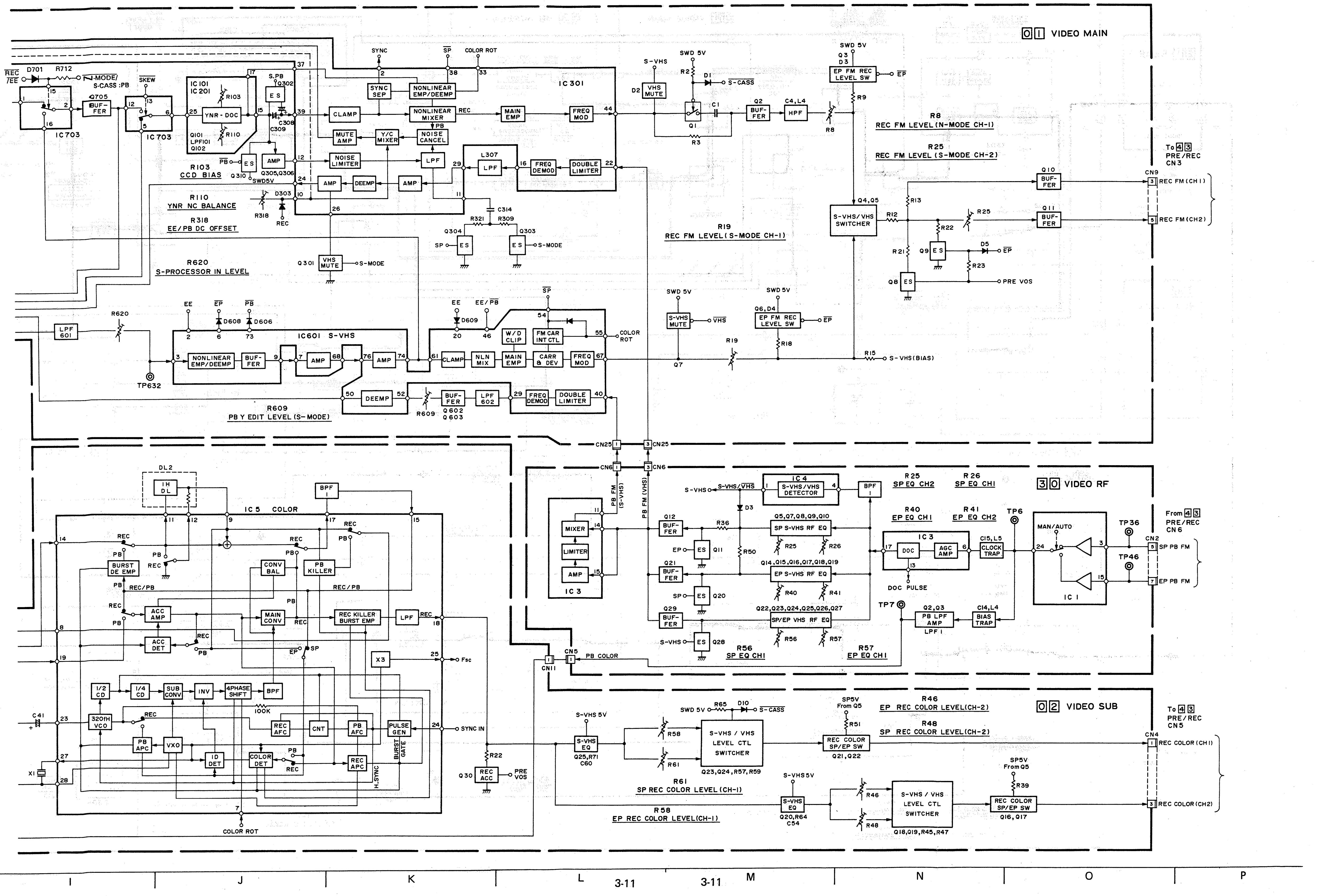
Q3, Q4 :
IMPROVES RISETIME AT RISE OF DRUM MOTOR AFTER SWITCH FROM STOP TO PB. REC, etc.

	CAP		DRUM	
	REC	PB	REC	PB
REFERENCE	CAP REF	CAP REF	V. SYNC	DRUM REF
COMPARISON	CAP FG 30 Hz	CTL 30 Hz	DRUM PG (30 Hz)	DRUM PG (30 Hz)

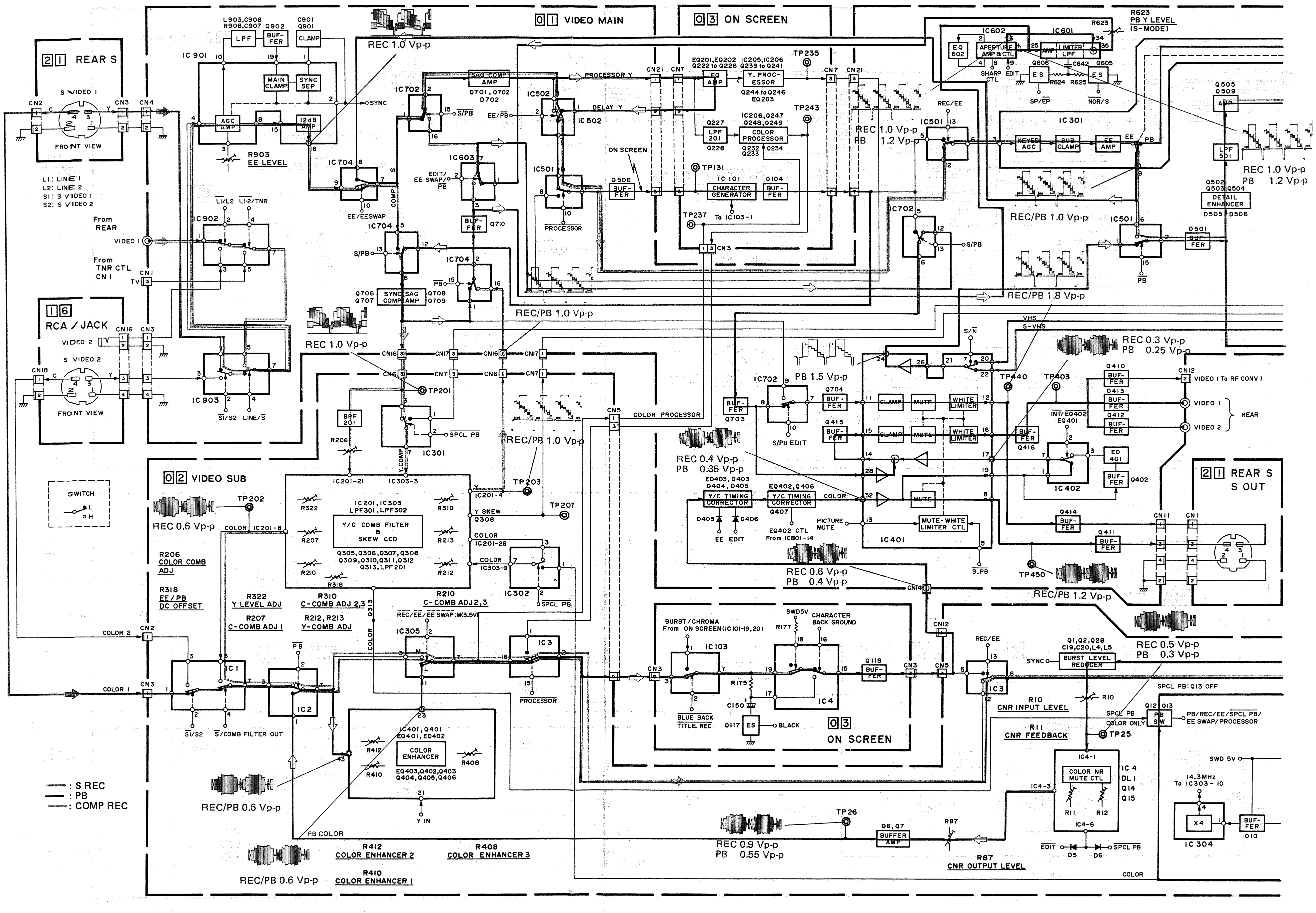
3.9 VIDEO BLOCK DIAGRAM (EE)



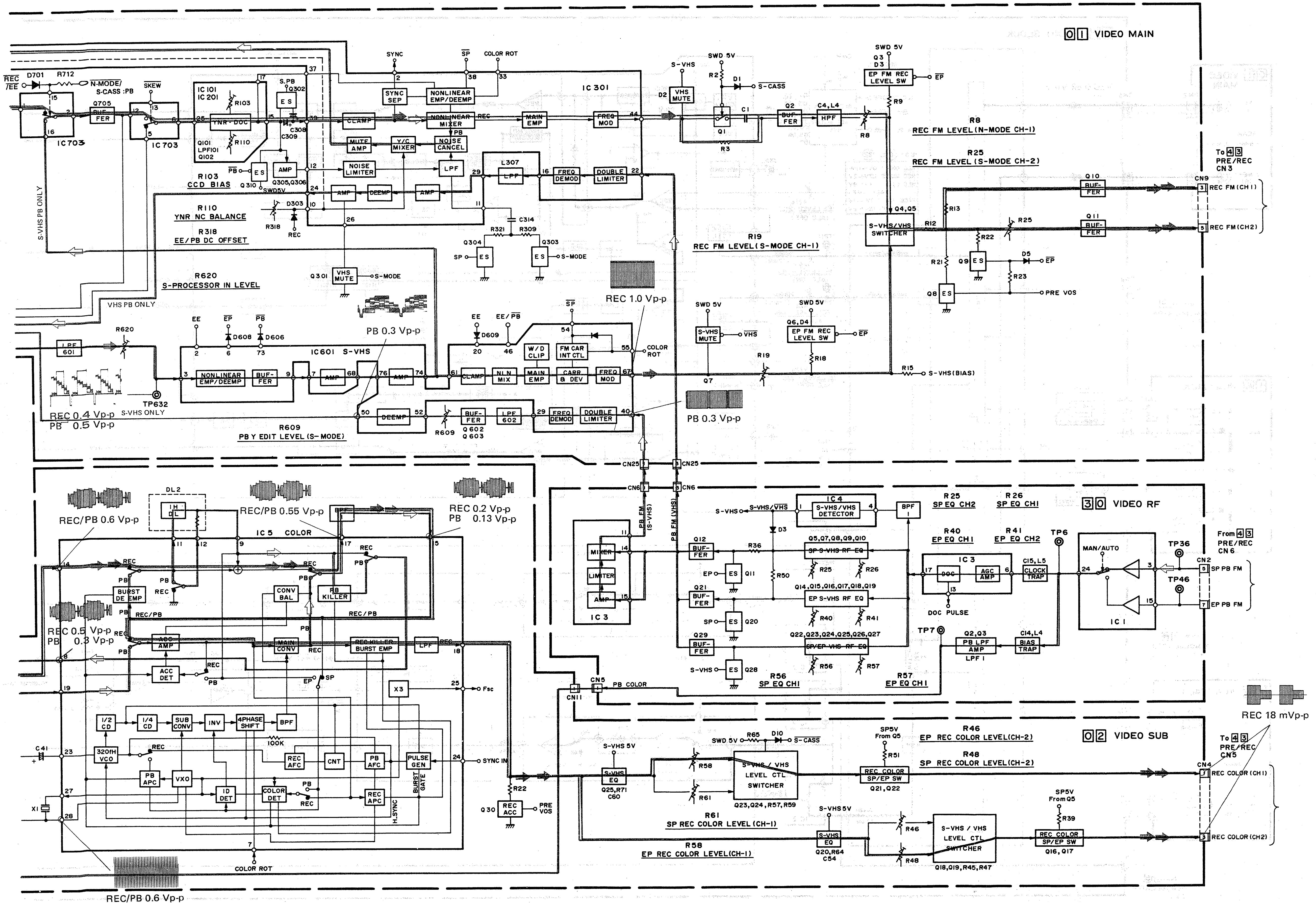
6
5
4
3
2
1
A
B
C
D
E
F
G
H
21 REAR S
S VIDEO 1
FRONT VIEW
CN2
CN3
CN4
L1: LINE 1
L2: LINE 2
S1: S VIDEO 1
S2: S VIDEO 2
From REAR
VIDEO 1
From TNR CTL CN1
TV
16 RCA / JACK
VIDEO 2
S VIDEO 2
CN16
CN18
IC 902
IC 903
L1/L2
L1-2/TNR
S1/S2
LINE/S
SWITCH
L
H
01 VIDEO MAIN
03 ON SCREEN
L903,C908
R906,C907
Q902
C901
Q901
LPF
BUF-FER
CLAMP
IC 901
MAIN CLAMP
SYNC SEP
AGC AMP
1.2 4 B AMP
SYNC
R903
EE LEVEL
IC702
S/PB
SAG COMP AMP
Q701, Q702
D702
IC502
EE/PB
IC704
EE/EESWAP
COMP
EDIT/EE SWAP/PB
IC603
BUF-FER
Q710
IC501
PROCESSOR
S/PB
SYNC COMP
SAG AMP
Q706
Q707
Q708
Q709
PB
PROCESSOR Y
DELAY Y
ON SCREEN
Q506
CN21
CN7
EQ201,EQ202
Q222 to Q226
IC205,IC206
Q239 to Q241
EQ AMP
Y. PROC-ESSOR
Q244 to Q246
EQ203
TP235
TP243
Q227
LPF 201
Q228
IC206,Q247
Q248,Q249
COLOR PROCESSOR
Q232
Q233
Q234
TP131
IC 101
Q104
CHARACTER GENERATOR
TP237
To IC103-1
CN3
S-EE ONLY
CN17
CN6
CN5
COLOR PROCESSOR
TP201
BPF 201
R206
SPCL PB
IC301
Y.COMP
02 VIDEO SUB
TP202
TP203
TP207
COLOR
IC201-8
IC201-21
IC303-3
IC201, IC303
LPF301, LPF302
Y/C COMB FILTER & SKEW CCD
Q305, Q306, Q307, Q308
Q309, Q310, Q311, Q312
Q313, LPF201
R322
R207
R210
R318
R310
R213
R212
Y
IC201-4
Y SKEW
Q308
IC201-28
IC303-9
IC302
R206
COLOR COMB ADJ
R318
EE/PB DC OFFSET
R322
Y LEVEL ADJ
R207
C-COMB ADJ 1
R310
C-COMB ADJ 2,3
R212, R213
Y-COMB ADJ
R210
C-COMB ADJ 2,3
REC/EE/EE SWAP:M(3.5V)
Q313
COLOR 2
COLOR 1
CN2
CN3
IC 1
IC 2
IC305
IC 3
S1/S2
S/COMB FILTER OUT
M
L
IC401, Q401
EQ401, EQ402
R412
R410
COLOR ENHANCER
R408
EQ403, Q402, Q403
Q404, Q405, Q406
Y IN
— : COMP EE
— : S EE
R412
COLOR ENHANCER 2
R408
COLOR ENHANCER 3
R410
COLOR ENHANCER 1
R623
PB Y LEVEL
(S-MODE)
IC602
IC601
EQ 602
APERTURE AMP & CTL
AMP
LIMITER LPF
SHARP CTL
EDIT
Q606
C642
Q605
ES
R624
R625
SP/EP
NOR/S
REC/EE
IC501
IC 301
KEYED AGC
SUB CLAMP
EE AMP
EE
PB
Q505
Q509
AMP
LPF 501
Q502
Q503 Q504
DETAIL ENHANCER
D505 D506
Q501
BUF-FER
IC702
S/PB
VHS
S-VHS
S/N
TP440
TP403
Q410
Q413
Q412
CN12
VIDEO (To RF CONV)
VIDEO 1
VIDEO 2
REAR
Q704
Q703
S/PB EDIT
Q415
CLAMP
MUTE
WHITE LIMITER
INT/EQ402
EQ401
Q416
EQ 401
IC402
Q402
21 REAR S
S OUT
EQ403, Q403
Q404, Q405
EQ402, EQ406
Y/C TIMING CORRECTOR
Q407
D405
D406
EE
EDIT
EQ402 CTL
From IC801-14
PICTURE MUTE
MUTE-WHITE LIMITER CTL
IC401
S.PB
TP450
Q414
Q411
CN11
CN1
CN14
BURST/CHROMA
From ON SCREEN (IC101-19, 20)
IC103
SWD5V
R177
CHARACTER BACK GROUND
IC4
Q118
R175
C150
Q117
ES
BLACK
BLUE BACK
TITLE REC
03 ON SCREEN
REC/EE
SYNC
Q1, Q2, Q28
C19, C20, L4, L5
BURST LEVEL REDUCER
R10
R10
CNR INPUT LEVEL
R11
CNR FEEDBACK
SPCL PB: Q13 OFF
SPCL PB
COLOR ONLY
Q12 Q13
PB SW
PB/REC/EE/SPCL PB/
EE SWAP/PROCESSOR
TP25
IC4-1
COLOR NR MUTE CTL
IC 4
DL 1
Q14
Q15
IC4-3
IC4-6
R11
R12
EDIT
D5
D6
SPCL PB
TP26
Q6, Q7
BUFFER AMP
R87
R87
CNR OUTPUT LEVEL
COLOR
SWD 5V
14.3MHz
To IC303-10
X4
IC 304
BUF-FER
Q10


01 VIDEO MAIN
30 VIDEO RF
02 VIDEO SUB
REC /EE
D701
R712
N-MODE/ S-CASS :PB
SKEW
Q705
BUF-FER
IC703
IC101 IC201
R103
YNR-DOC
Q101 LPF101 Q102
R110
S.PB
Q302
ES
C308
C309
PB
AMP
Q310
Q305,Q306
SWD5V
R103 CCD BIAS
R110 YNR NC BALANCE
R318 EE/PB DC OFFSET
D303
R318
REC
R620 S-PROCESSOR IN LEVEL
SYNC
SP
COLOR ROT
SYNC SEP
NONLINEAR EMP/DEEMP
IC301
CLAMP
NONLINEAR MIXER
MAIN EMP
FREQ MOD
MUTE AMP
Y/C MIXER
NOISE CANCEL
NOISE LIMITER
LPF
L307
FREQ DEMOD
DOUBLE LIMITER
AMP
DEEMP
C314
R321
R309
Q304
Q303
S-MODE
Q301
VHS MUTE
S-VHS
SWD 5V
D2
R2
D1
S-CASS
C1
Q1
R3
Q2
C4,L4
HPF
R8
Q3 D3
EP FM REC LEVEL SW
EP
R9
R8 REC FM LEVEL (N-MODE CH-1)
R25 REC FM LEVEL (S-MODE CH-2)
R19 REC FM LEVEL (S-MODE CH-1)
Q4,Q5
S-VHS/VHS SWITCHER
R12
R13
R22
R21
Q9
D5
R23
Q8
PRE VOS
Q10
Q11
To 43 PRE/REC CN3
CN9
REC FM (CH1)
REC FM (CH2)
R620
LPF 601
EE
D608
D606
IC601 S-VHS
NONLINEAR EMP/DEEMP
TP632
D609
EE/PB
W/D CLIP
FM CAR INT CTL
NLN MIX
CARR & DEV
COLOR ROT
S-VHS MUTE
VHS
Q6,D4
EP FM REC LEVEL SW
R18
Q7
R19
R15
S-VHS (BIAS)
DEEMP
R609
BUF-FER
LPF 602
Q602 Q603
R609 PB Y EDIT LEVEL (S-MODE)
CN25
CN6
DL2
1H DL
BPF 1
IC5 COLOR
BURST DE EMP
REC/PB
ACC AMP
ACC DET
CONV BAL
PB KILLER
MAIN CONV
REC KILLER BURST EMP
X3
Fsc
1/2 CD
1/4 CD
SUB CONV
INV
4PHASE SHIFT
BPF
100K
320fH VCO
C41
X1
PB APC
VXO
ID DET
REC AFC
CNT
PB AFC
COLOR DET
REC APC
PULSE GEN
BURST GATE
H.SYNC
SYNC IN
R22
Q30
REC ACC
PRE VOS
COLOR ROT
CN11
CN5
PB COLOR
PB FM (S-VHS)
PB FM (VHS)
IC4
S-VHS/VHS DETECTOR
S-VHS/VHS
MIXER
LIMITER
AMP
IC3
Q12
R36
D3
Q5,Q7,Q8,Q9,Q10
SP S-VHS RF EQ
Q11
R50
Q21
Q14,Q15,Q16,Q17,Q18,Q19
EP S-VHS RF EQ
Q20
Q29
Q22,Q23,Q24,Q25,Q26,Q27
SP/EP VHS RF EQ
Q28
R56 SP EQ CH1
R57 EP EQ CH1
R25 SP EQ CH2
R26 SP EQ CH1
R40 EP EQ CH1
R41 EP EQ CH2
TP6
DOC
AGC AMP
C15,L5
CLOCK TRAP
DOC PULSE
TP7
Q2,Q3
PB LPF AMP
LPF 1
C14,L4
BIAS TRAP
MAN/AUTO
IC1
TP36
TP46
From 43 PRE/REC CN6
CN2
SP PB FM
EP PB FM
S-VHS 5V
S-VHS EQ
Q25,R71 C60
R65
D10
R58
R61
S-VHS / VHS LEVEL CTL SWITCHER
Q23,Q24,R57,R59
SP5V From Q5
R51
REC COLOR SP/EP SW
Q21,Q22
R46 EP REC COLOR LEVEL (CH-2)
R48 SP REC COLOR LEVEL (CH-2)
R61 SP REC COLOR LEVEL (CH-1)
R58 EP REC COLOR LEVEL (CH-1)
Q20,R64 C54
R46
R48
Q18,Q19,R45,R47
R39
Q16,Q17
To 43 PRE/REC CN5
CN4
REC COLOR (CH1)
REC COLOR (CH2)
I
J
K
L
M
N
O
P

3-9-1 VIDEO BLOCK DIAGRAM (REC & PB)

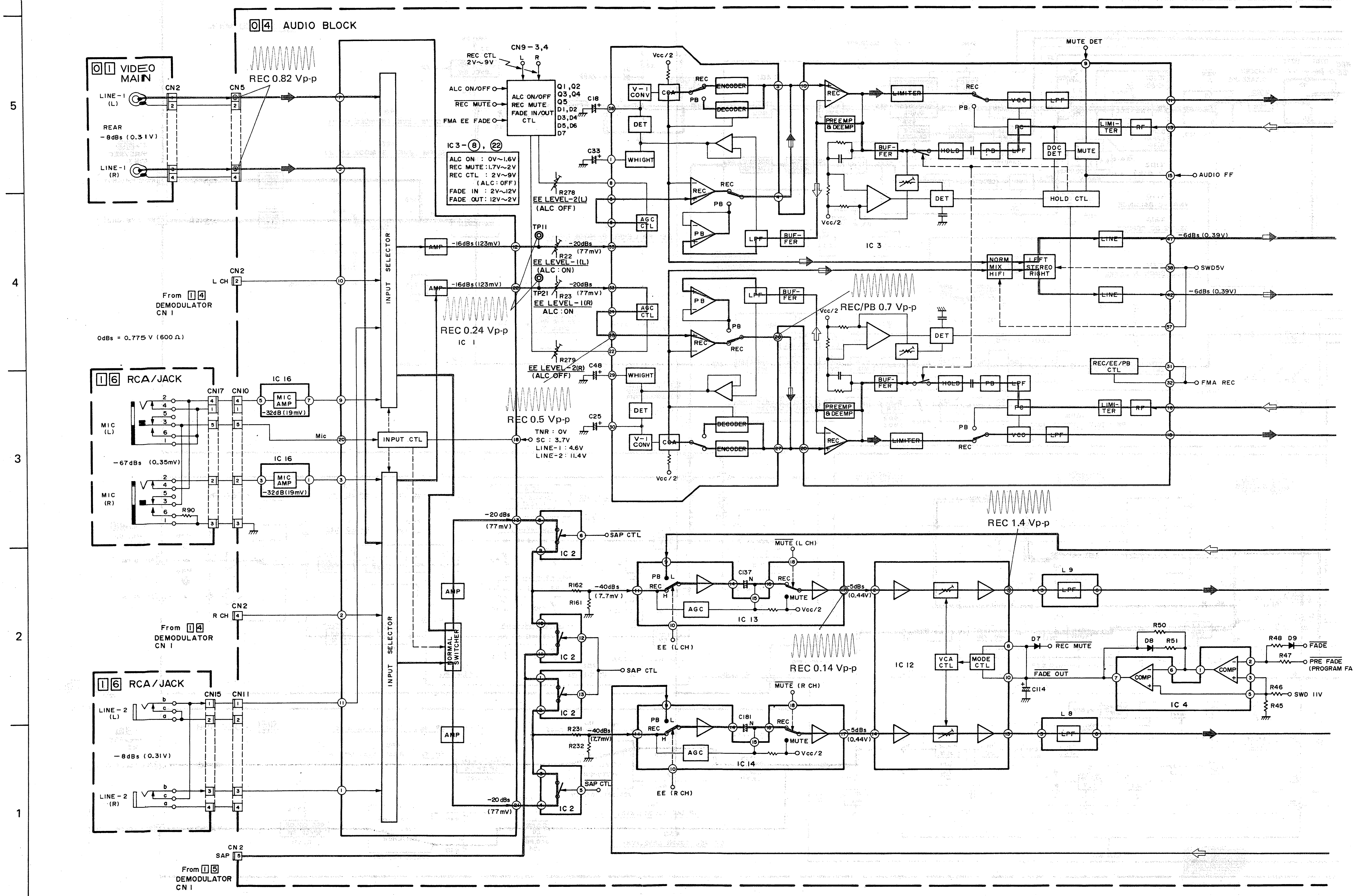


21 REAR S
S VIDEO 1
FRONT VIEW
CN2
CN3
CN4
L1: LINE 1
L2: LINE 2
S1: S VIDEO 1
S2: S VIDEO 2
From REAR
VIDEO 1
From TNR CTL CN1
TV
16 RCA / JACK
VIDEO 2
S VIDEO 2
CN16
CN18
SWITCH
L
H
— : S REC
— : PB
— : COMP REC
01 VIDEO MAIN
L903,C908 R906,C907 Q902
C901 Q901
LPF
BUF-FER
CLAMP
IC901
MAIN CLAMP
SYNC SEP
SYNC
AGC AMP
12dB AMP
R903 EE LEVEL
L1/L2
L1-2/TNR
IC902
IC903
S1/S2
LINE/S
REC 1.0 Vp-p
IC702
S/PB
EE/PB
IC704
COMP
EE/EESWAP
S/PB
SAG COMP AMP
Q701, Q702 D702
IC603
EDIT/ EE SWAP/ PB
BUF-FER
Q710
IC704
PB
Q706 Q707
SYNC COMP
SAG AMP
Q708 Q709
REC/PB 1.0 Vp-p
CN16
CN17
CN6
CN7
TP201
BPF 201
R206
IC301
SPCL PB
Y.COMP
IC502
PROCESSOR Y
DELAY Y
IC501
PROCESSOR
ON SCREEN
Q506
BUF-FER
CN21
CN7
EQ201, EQ202 Q222 to Q226
IC205, IC206 Q239 to Q241
EQ AMP
Y. PROC-ESSOR
Q244 to Q246 EQ203
TP235
TP243
Q227
LPF 201
Q228
IC206, Q247 Q248, Q249
COLOR PROCESSOR
Q232 Q233
Q234
TP131
IC101
CHARACTER GENERATOR
Q104
BUF-FER
TP237
To IC103-1
CN3
03 ON SCREEN
R623 PB Y LEVEL (S-MODE)
IC602
IC601
EQ 602
APERTURE AMP & CTL
AMP
LIMITER LPF
SHARP CTL
EDIT
Q606
Q605
C642
E S
R624
R625
SP/EP
NOR/S
REC/EE
IC501
IC301
KEYED AGC
SUB CLAMP
EE AMP
EE
PB
REC 1.0 Vp-p
PB 1.2 Vp-p
REC/PB 1.0 Vp-p
IC702
IC501
REC/PB 1.8 Vp-p
Q505 Q509
AMP
LPF 501
Q502 Q503 Q504
DETAIL ENHANCER
D505 D506
Q501
BUF-FER
VHS
S-VHS
S/N
REC 0.3 Vp-p
PB 0.25 Vp-p
PB 1.5 Vp-p
IC702
Q703
Q704
Q415
CLAMP
MUTE
WHITE LIMITER
S/PB EDIT
TP440
TP403
Q410
Q413
Q412
BUF-FER
CN12
VIDEO (To RF CONV)
VIDEO 1
VIDEO 2
REAR
INT/EQ402
EQ401
Q416
EQ 401
IC402
Q402
CN5
COLOR PROCESSOR
REC 0.4 Vp-p
PB 0.35 Vp-p
EQ403, Q403 Q404, Q405
EQ402, Q406
Y/C TIMING CORRECTOR
COLOR
Q407
D405
D406
EE EDIT
EQ402 CTL From IC801-14
PICTURE MUTE
MUTE-WHITE LIMITER CTL
IC401
S.PB
TP450
REC 0.6 Vp-p
PB 0.4 Vp-p
CN14
REC/PB 1.2 Vp-p
Q414
Q411
CN11
CN1
21 REAR S S OUT
02 VIDEO SUB
TP202
REC 0.6 Vp-p
COLOR
IC201-8
IC201-21
IC303-3
IC201, IC303 LPF301, LPF302
Y/C COMB FILTER & SKEW CCD
Q305, Q306, Q307, Q308 Q309, Q310, Q311, Q312 Q313, LPF201
R322
R207
R210
R318
R310
R213
R212
IC201-4
Y SKEW
Q308
IC201-28
IC303-9
TP203
TP207
REC/PB 1.0 Vp-p
IC302
SPCL PB
R206 COLOR COMB ADJ
R318 EE/PB DC OFFSET
R322 Y LEVEL ADJ
R207 C-COMB ADJ 1
R310 C-COMB ADJ 2,3
R212, R213 Y-COMB ADJ
R210 C-COMB ADJ 2,3
REC/EE/EE SWAP: M3.5V
Q313
COLOR 2
COLOR 1
IC1
S1/S2
S/COMB FILTER OUT
IC2
IC305
IC3
PROCESSOR
IC401, Q401 EQ401, EQ402
COLOR ENHANCER
EQ403, Q402, Q403 Q404, Q405, Q406
R412
R410
R408
Y IN
PB COLOR
REC/PB 0.6 Vp-p
R412 COLOR ENHANCER 2
R408 COLOR ENHANCER 3
R410 COLOR ENHANCER 1
BURST/CHROMA From ON SCREEN (IC101-19, 20)
IC103
SWD5V
R177
CHARACTER BACK GROUND
R175
C150
IC4
Q118
BUF-FER
BLUE BACK TITLE REC
Q117
ES
BLACK
03 ON SCREEN
TP26
REC 0.9 Vp-p
PB 0.55 Vp-p
Q6, Q7
BUFFER AMP
R87
R87 CNR OUTPUT LEVEL
CN12
REC/EE
SYNC
Q1, Q2, Q28 C19, C20, L4, L5
BURST LEVEL REDUCER
REC 0.5 Vp-p
PB 0.3 Vp-p
IC3
SPCL PB: Q13 OFF
R10
R10 CNR INPUT LEVEL
R11 CNR FEEDBACK
Q12 Q13
PB SW
SPCL PB
COLOR ONLY
PB/REC/EE/SPCL PB/ EE SWAP/PROCESSOR
TP25
IC4-1
COLOR NR MUTE CTL
IC4-3
R11
R12
IC4-6
IC4 DL1 Q14 Q15
EDIT
D5
D6
SPCL PB
COLOR
SWD 5V
14.3MHz To IC303-10
X4
BUF-FER
IC304
Q10

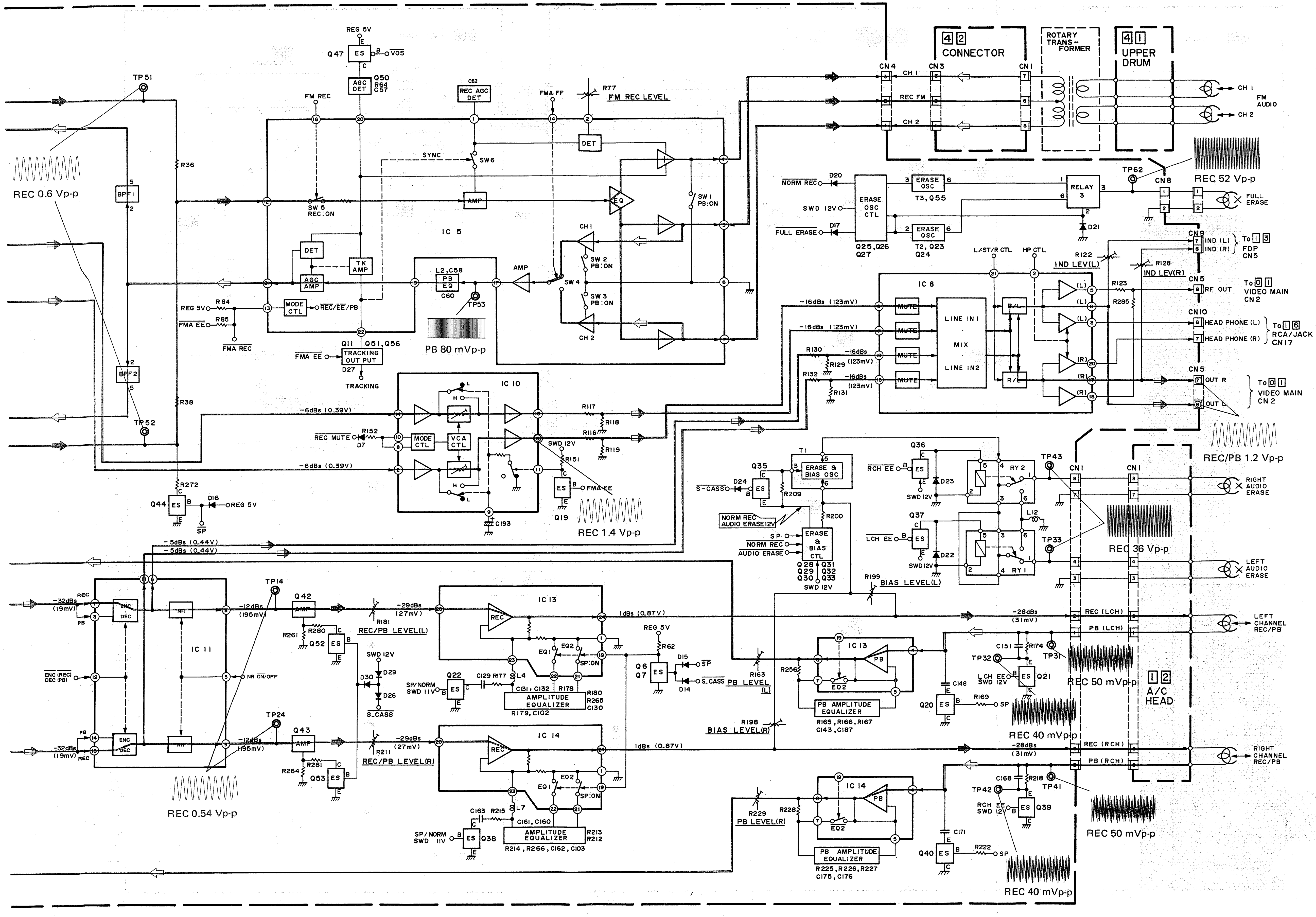


01 VIDEO MAIN
30 VIDEO RF
02 VIDEO SUB
REC/EE
D701
R712
N-MODE/ S-CASS :PB
SKEW
Q705 BUF-FER
IC703
IC703
IC101 IC201
R103
YNR-DOC
Q101 LPF101 Q102
R110
S.PB Q302
ES
C308
C309
AMP
Q305,Q306
PB
ES
Q310
SWD5V
R103 CCD BIAS
R110 YNR NC BALANCE
R318 EE/PB DC OFFSET
D303
R318
REC
SYNC
SP
COLOR ROT
SYNC SEP
NONLINEAR EMP/DEEMP
IC301
CLAMP
NONLINEAR MIXER
MAIN EMP
FREQ MOD
MUTE AMP
Y/C MIXER
NOISE CANCEL
NOISE LIMITER
LPF
L307
LPF
FREQ DEMOD
DOUBLE LIMITER
AMP
DEEMP
AMP
C314
R321
R309
Q304
Q303
ES
S-MODE
Q301
VHS MUTE
S-MODE
R620 S-PROCESSOR IN LEVEL
S-VHS PB ONLY
VHS PB ONLY
R620
LPF 601
TP632
REC 0.4 Vp-p
PB 0.5 Vp-p
S-VHS ONLY
EE
EP
PB
D608
D606
IC601 S-VHS
NONLINEAR EMP/DEEMP
BUF-FER
AMP
AMP
PB 0.3 Vp-p
DEEMP
BUF-FER
LPF 602
Q602 Q603
R609
R609 PB Y EDIT LEVEL (S-MODE)
EE/PB
D609
W/D CLIP
FM CAR INT CTL
CLAMP
NLN MIX
MAIN EMP
CARR & DEV
FREQ MOD
COLOR ROT
FREQ DEMOD
DOUBLE LIMITER
REC 1.0 Vp-p
PB 0.3 Vp-p
S-VHS
SWD 5V
D2
VHS MUTE
R2
D1
S-CASS
Q1
C1
R3
Q2 BUF-FER
C4,L4 HPF
R8
SWD 5V
Q3 D3
EP FM REC LEVEL SW
EP
R9
R8 REC FM LEVEL (N-MODE CH-1)
R25 REC FM LEVEL (S-MODE CH-2)
R19 REC FM LEVEL (S-MODE CH-1)
Q4,Q5
S-VHS/VHS SWITCHER
R12
R13
R22
R25
R21
Q9 ES
D5
EP
R23
Q8 ES
PRE VOS
Q10 BUF-FER
Q11 BUF-FER
To 43 PRE/REC CN3
CN9
REC FM (CH1)
REC FM (CH2)
S-VHS MUTE
VHS
Q6,D4 EP FM REC LEVEL SW
R18
Q7
R19
R15
S-VHS(BIAS)
CN25
CN6
DL2
1H DL
REC/PB 0.6 Vp-p
REC/PB 0.55 Vp-p
REC 0.2 Vp-p
PB 0.13 Vp-p
IC5 COLOR
BPF
REC
PB
BURST DE EMP
CONV BAL
PB KILLER
REC/PB
REC 0.5 Vp-p
PB 0.3 Vp-p
ACC AMP
MAIN CONV
REC KILLER BURST EMP
LPF
ACC DET
EP SP
X3
Fsc
1/2 CD
1/4 CD
SUB CONV
INV
4PHASE SHIFT
BPF
100K
C41
320fH VCO
REC AFC
CNT
PB AFC
PULSE GEN
SYNC IN
PB APC
VXO
ID DET
COLOR DET
REC APC
BURST GATE
H.SYNC
X1
COLOR ROT
REC/PB 0.6 Vp-p
R22
Q30 REC ACC
PRE VOS
CN5
CN11
PB COLOR
IC4
S-VHS/VHS
S-VHS/VHS DETECTOR
BPF
R25 SP EQ CH2
R26 SP EQ CH1
PB FM (S-VHS)
PB FM (VHS)
D3
IC3
MIXER
LIMITER
AMP
Q12 BUF-FER
R36
Q5,Q7,Q8,Q9,Q10
SP S-VHS RF EQ
R25
R26
EP
ES Q11
R50
Q21 BUF-FER
Q14,Q15,Q16,Q17,Q18,Q19
EP S-VHS RF EQ
R40
R41
SP
ES Q20
Q29 BUF-FER
Q22,Q23,Q24,Q25,Q26,Q27
SP/EP VHS RF EQ
R56
R57
S-VHS
ES Q28
R56 SP EQ CH1
R57 EP EQ CH1
R40 EP EQ CH1
R41 EP EQ CH2
IC3
DOC
AGC AMP
DOC PULSE
C15,L5 CLOCK TRAP
TP6
MAN/AUTO
IC1
TP36
TP46
From 43 PRE/REC CN6
CN2
SP PB FM
EP PB FM
TP7
Q2,Q3 PB LPF AMP LPF1
C14,L4 BIAS TRAP
REC 18 mVp-p
S-VHS 5V
SWD 5V
R65
D10
S-CASS
S-VHS EQ
Q25,R71 C60
R58
R61
S-VHS / VHS LEVEL CTL SWITCHER
Q23,Q24,R57,R59
SP5V From Q5
R51
REC COLOR SP/EP SW
Q21,Q22
R46 EP REC COLOR LEVEL(CH-2)
R48 SP REC COLOR LEVEL(CH-2)
To 43 PRE/REC CN5
CN4
REC COLOR (CH1)
R61 SP REC COLOR LEVEL (CH-1)
R58 EP REC COLOR LEVEL(CH-1)
S-VHS 5V
S-VHS EQ
Q20,R64 C54
R46
R48
S-VHS / VHS LEVEL CTL SWITCHER
Q18,Q19,R45,R47
SP5V From Q5
R39
REC COLOR SP/EP SW
Q16, Q17
REC COLOR (CH2)

3.10 AUDIO BLOCK DIAGRAM



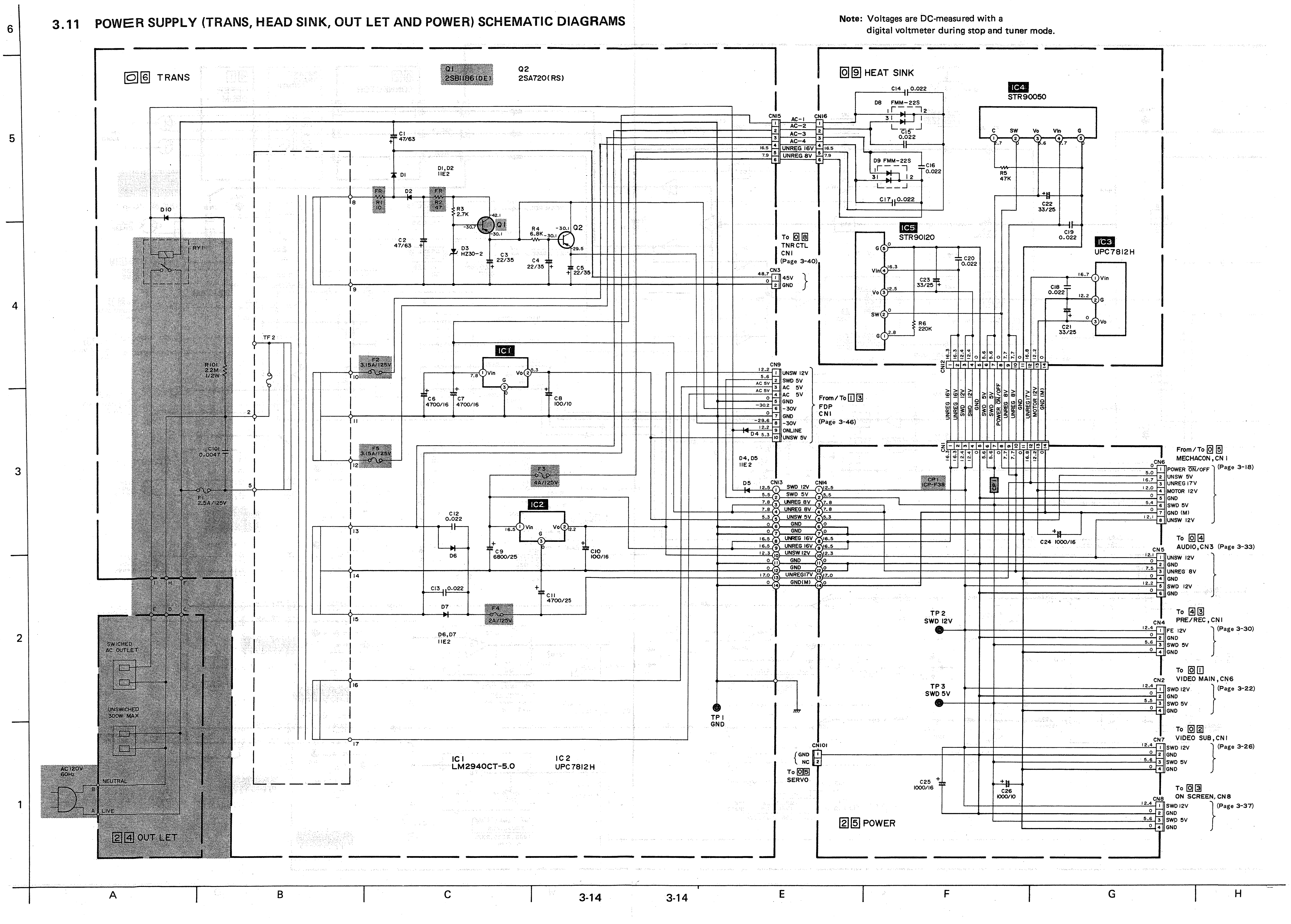
6
5
4
3
2
1
04 AUDIO BLOCK
01 VIDEO MAIN
LINE-1 (L)
REAR
-8dBs (0.31V)
LINE-1 (R)
CN2
CN5
REC 0.82 Vp-p
From 14 DEMODULATOR CN1
L CH
R CH
0dBs = 0.775 V (600 Ω)
16 RCA/JACK
MIC (L)
MIC (R)
-67dBs (0.35mV)
R90
CN17
CN10
IC 16
MIC AMP
-32dB (19mV)
Mic
LINE-2 (L)
LINE-2 (R)
-8dBs (0.31V)
CN15
CN11
SAP
From 15 DEMODULATOR CN1
INPUT SELECTOR
INPUT CTL
AMP
-16dBs (123mV)
REC 0.24 Vp-p
IC 1
NORMAL SWITCHER
-20dBs (77mV)
CN9-3,4
REC CTL 2V~9V
ALC ON/OFF
REC MUTE
FMA EE FADE
ALC ON/OFF REC MUTE FADE IN/OUT CTL
Q1,Q2 Q3,Q4 Q5 D1,D2 D3,D4 D5,D6 D7
IC3-⑧, ㉒
ALC ON : 0V~1.6V
REC MUTE : 1.7V~2V
REC CTL : 2V~9V (ALC : OFF)
FADE IN : 2V~12V
FADE OUT : 12V~2V
C18
C33
R278
EE LEVEL-2(L) (ALC OFF)
TP11
-20dBs (77mV)
R22
EE LEVEL-1(L) (ALC : ON)
TP21
R23
EE LEVEL-1(R) ALC : ON
R279
EE LEVEL-2(R) (ALC OFF)
C48
C25
REC 0.5 Vp-p
TNR : 0V
SC : 3.7V
LINE-1 : 4.6V
LINE-2 : 11.4V
Vcc/2
V-I CONV
CCA
DET
WHIGHT
AGC CTL
ENCODER
DECODER
REC
PB
LPF
BUF-FER
PREEMP & DEEMP
LIMITER
VCO
PC
LIMI-TER
RF
HOLD
DOC DET
MUTE
HOLD CTL
MUTE DET
AUDIO FF
IC 3
REC/PB 0.7 Vp-p
LINE
-6dBs (0.39V)
NORM MIX HIFI
LEFT STEREO RIGHT
SWD5V
REC/EE/PB CTL
FMA REC
IC 2
SAP CTL
REC 1.4 Vp-p
MUTE (L CH)
R162
R161
-40dBs (7.7mV)
C137
AGC
-5dBs (0.44V)
Vcc/2
IC 13
EE (L CH)
REC 0.14 Vp-p
IC 12
VCA CTL
MODE CTL
L 9
LPF
D7
REC MUTE
FADE OUT
C114
R50
D8
R51
COMP
IC 4
R48
D9
FADE
R47
PRE FADE (PROGRAM FADE)
R46
SWD 11V
R45
MUTE (R CH)
R231
R232
C181
IC 14
EE (R CH)
L 8
A
B
C
E
F
G
H



TP51
REC 0.6 Vp-p
BPF1
BPF2
TP52
R36
R38
REG 5V
Q47
ES
VOS
AGC DET
Q50 R64 C57
FM REC
REC AGC DET
C62
FMA FF
R77
FM REC LEVEL
DET
SYNC
SW6
SW5 REC:ON
AMP
EQ
SW1 PB:ON
IC 5
CH1
SW2 PB:ON
SW4
SW3 PB:ON
CH2
TK AMP
AGC AMP
MODE CTL
REC/EE/PB
REG 5V
R84
FMA EE
R85
FMA REC
L2, C58
PB EQ
C60
TP53
PB 80 mVp-p
Q11 Q51, Q56
TRACKING OUT PUT
D27
TRACKING
IC 10
-6dBs (0.39V)
REC MUTE
R152
D7
MODE CTL
VCA CTL
R117
R118
R116
R119
SWD 12V
R151
FMA EE
Q19
REC 1.4 Vp-p
C193
R272
Q44
D16
REG 5V
SP
42 CONNECTOR
CN4
CN3
CN1
CH 1
REC FM
CH 2
ROTARY TRANS-FORMER
41 UPPER DRUM
FM AUDIO
TP62
REC 52 Vp-p
CN8
FULL ERASE
NORM REC
D20
SWD 12V
FULL ERASE
D17
ERASE OSC CTL
Q25, Q26 Q27
ERASE OSC
T3, Q55
T2, Q23 Q24
RELAY 3
D21
L/ST/R CTL
HP CTL
R122
IND LEV(L)
R128
IND LEV(R)
CN9
IND (L)
IND (R)
To 13 FDP CN5
IC 8
-16dBs (123mV)
R130
R129
R132
R131
MUTE
LINE IN1
MIX
LINE IN2
R/L
R123
R285
CN5
RF OUT
To 01 VIDEO MAIN CN2
CN10
HEAD PHONE (L)
HEAD PHONE (R)
To 16 RCA/JACK CN17
OUT R
OUT L
REC/PB 1.2 Vp-p
T1
ERASE & BIAS OSC
Q35
D24
S-CASS
R209
R200
NORM REC AUDIO ERASE 12V
ERASE & BIAS CTL
NORM REC
AUDIO ERASE
Q28 Q31 Q29 Q32 Q30 Q33
Q36
RCH EE
D23
RY 2
TP43
Q37
LCH EE
D22
L12
RY 1
TP33
REC 36 Vp-p
RIGHT AUDIO ERASE
LEFT AUDIO ERASE
R199
BIAS LEVEL(L)
-5dBs (0.44V)
-32dBs (19mV)
REC
PB
ENC DEC
NR
IC 11
ENC (REC) DEC (PB)
NR ON/OFF
TP14
-12dBs (195mV)
Q42
R280
R261
Q52
R181
-29dBs (27mV)
REC/PB LEVEL(L)
SWD 12V
D29
D30
D26
S_CASS
IC 13
EQ1
EQ2
SP:ON
1dBs (0.87V)
SP/NORM SWD 11V
Q22
C129 R177
L4
C131, C132 R178
AMPLITUDE EQUALIZER
R179, C102
R180 R265 C130
REG 5V
R62
Q6 Q7
D15
D14
R163
PB LEVEL (L)
R256
PB AMPLITUDE EQUALIZER
R165, R166, R167 C143, C187
-28dBs (31mV)
REC (LCH)
PB (LCH)
LEFT CHANNEL REC/PB
C151
R174
TP31
TP32
LCH EE SWD 12V
Q21
REC 50 mVp-p
C148
Q20
R169
REC 40 mVp-p
12 A/C HEAD
TP24
Q43
R281
R264
Q53
R211
REC/PB LEVEL(R)
IC 14
R198
BIAS LEVEL(R)
REC (RCH)
PB (RCH)
RIGHT CHANNEL REC/PB
REC 0.54 Vp-p
C163 R215
L7
C161, C160
R213 R212
SP/NORM SWD 11V
Q38
R214, R266, C162, C103
R229
PB LEVEL(R)
R228
R225, R226, R227 C175, C176
C168
R218
TP42
TP41
RCH EE SWD 12V
Q39
REC 50 mVp-p
C171
Q40
R222
REC 40 mVp-p
I
J
K
L
M
N
O
P

3.11 POWER SUPPLY (TRANS, HEAD SINK, OUT LET AND POWER) SCHEMATIC DIAGRAMS

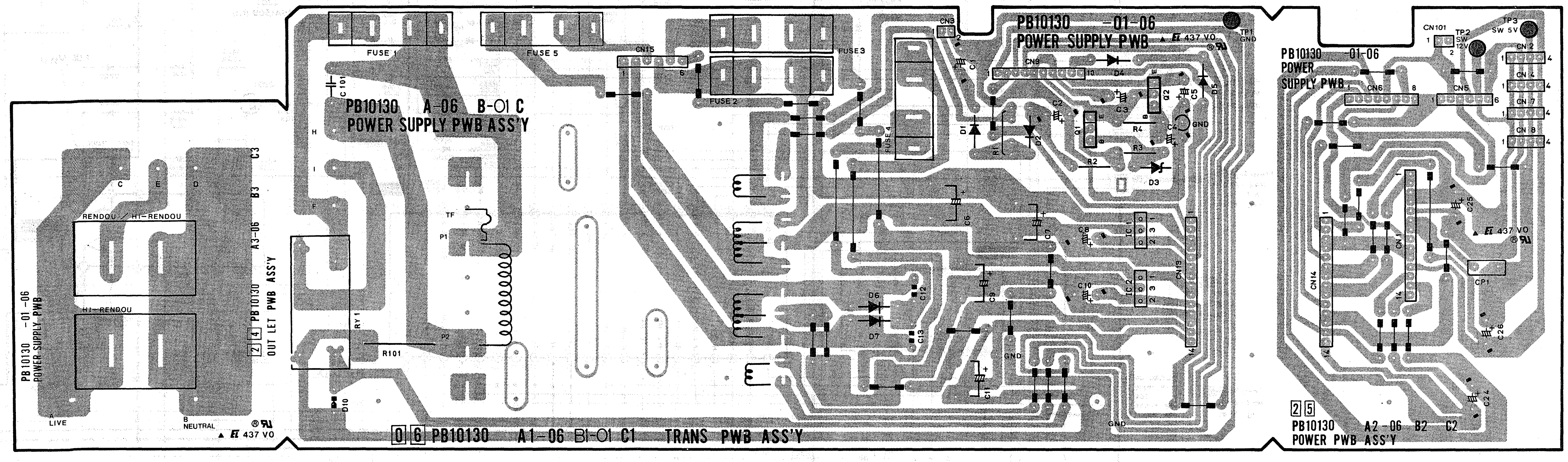
Note: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.



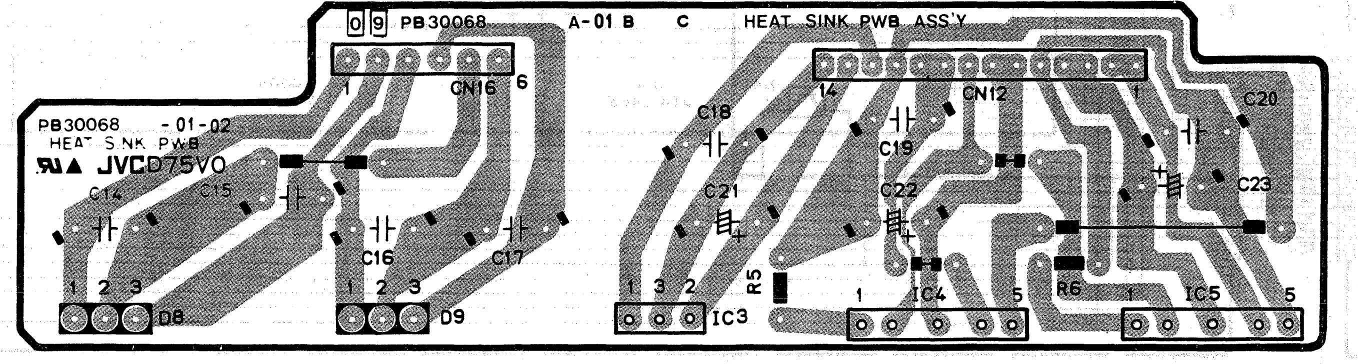
06 TRANS
Q1 2SB1186(DE)
Q2 2SA720(RS)
09 HEAT SINK
24 OUT LET
25 POWER
IC1 LM2940CT-5.0
IC2 UPC7812H
IC3 UPC7812H
IC4 STR90050
IC5 STR90120
D1, D2 11E2
D3 HZ30-2
D4, D5 11E2
D6, D7 11E2
D8 FMM-22S
D9 FMM-22S
D10
RY1
R101 2.2M 1/2W
C101 0.0047
F1 2.5A/125V
F2 3.15A/125V
F3 4A/125V
F4 2A/125V
F5 3.15A/125V
TF2
FR R1 10
FR R2 47
R3 2.7K
R4 6.8K
R5 47K
R6 220K
C1 47/63
C2 47/63
C3 22/35
C4 22/35
C5 22/35
C6 4700/16
C7 4700/16
C8 100/10
C9 6800/25
C10 100/16
C11 4700/25
C12 0.022
C13 0.022
C14 0.022
C15 0.022
C16 0.022
C17 0.022
C18 0.022
C19 0.022
C20 0.022
C21 33/25
C22 33/25
C23 33/25
C24 1000/16
C25 1000/16
C26 1000/10
CP1 ICP-F38
SWICHED AC OUTLET
UNSWICHED 300W MAX
AC120V 60Hz
NEUTRAL
LIVE
CN15 AC-1 AC-2 AC-3 AC-4 UNREG 16V UNREG 8V
CN16
CN3 45V GND
To 08 TNR CTL CN1 (Page 3-40)
CN9 UNSW 12V SWD 5V AC 5V AC 5V GND -30V GND -30V ONLINE UNSW 5V
From/To 13 FDP CN1 (Page 3-46)
CN13 SWD 12V SWD 5V UNREG 8V UNREG 8V UNSW 5V GND GND UNREG 16V UNREG 16V UNSW 12V GND GND UNREG17V GND(M)
CN14
CN12
CN11 UNREG 16V UNREG 16V SWD 12V SWD 12V GND SWD 5V SWD 5V POWER ON/OFF UNREG 8V UNREG 8V GND UNREG17V MOTOR 12V GND (M)
From/To 05 MECHACON, CN1 (Page 3-18)
CN6 POWER ON/OFF UNSW 5V UNREG17V MOTOR 12V GND SWD 5V GND (M) UNSW 12V
To 04 AUDIO, CN3 (Page 3-33)
CN5 UNSW 12V GND UNREG 8V GND SWD 12V GND
To 43 PRE/REC, CN1 (Page 3-30)
CN4 FE 12V GND SWD 5V GND
To 01 VIDEO MAIN, CN6 (Page 3-22)
CN2 SWD 12V GND SWD 5V GND
To 02 VIDEO SUB, CN1 (Page 3-26)
CN7 SWD 12V GND SWD 5V GND
To 03 ON SCREEN, CN8 (Page 3-37)
CN8 SWD 12V GND SWD 5V GND
CN101 GND NC
To 05 SERVO
TP1 GND
TP2 SWD 12V
TP3 SWD 5V
1 2 3 4 5 6
A B C D E F G H

3.12 POWER SUPPLY (TRANS, POWER AND OUTLET), HEAT SINK CIRCUIT BOARDS

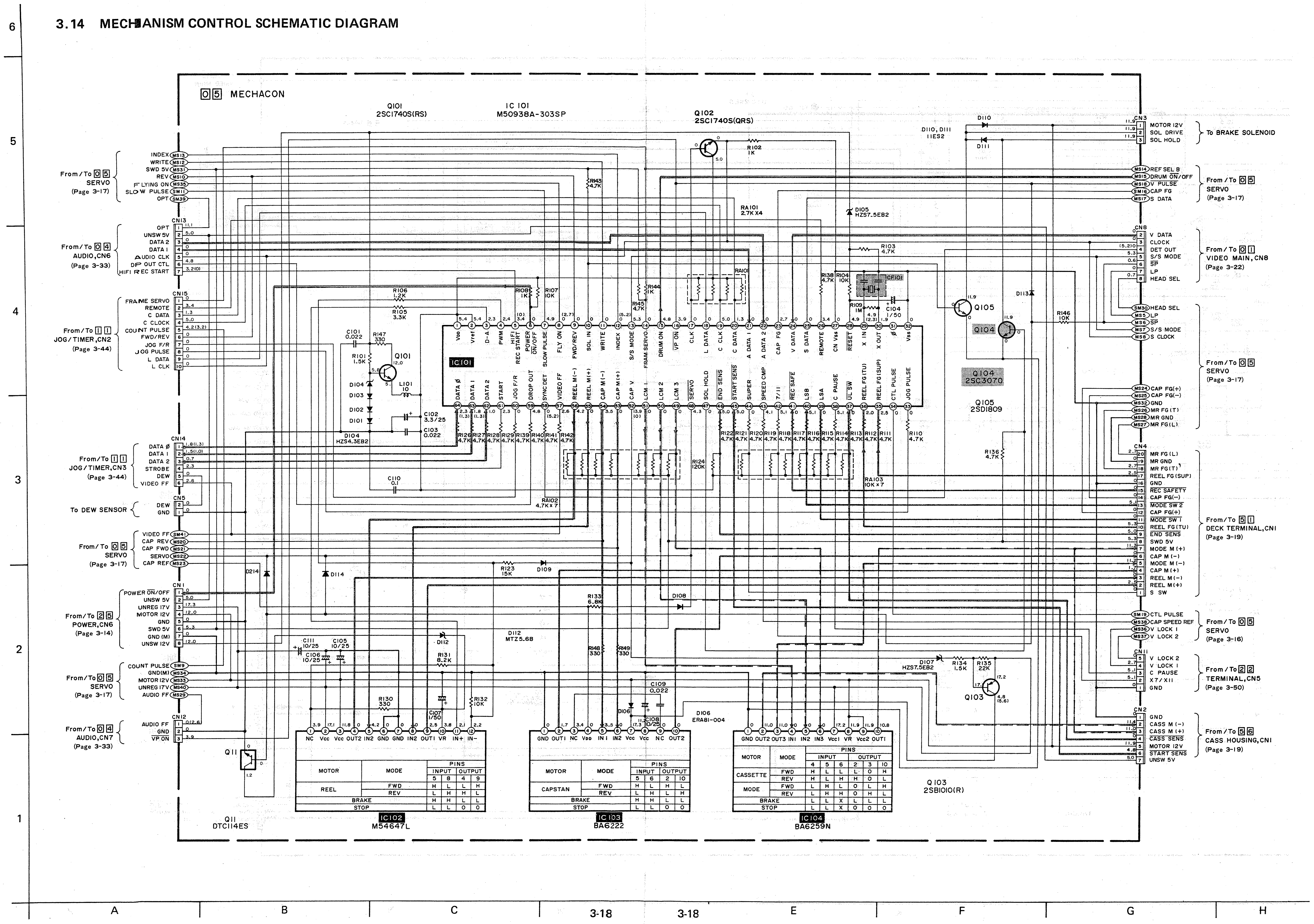
– POWER SUPPLY –


PB10130 -01-06
POWER SUPPLY PWB
RENDOU / HI-RENDOU
HI-RENDOU
LIVE
NEUTRAL
437 VO
2 4 PB10130 A3-06 B3 C3
OUT LET PWB ASS'Y
FUSE 1
FUSE 5
FUSE 3
FUSE 2
FUSE 4
CN15
CN3
CN9
PB10130 A-06 B-01 C
POWER SUPPLY PWB ASS'Y
PB10130 -01-06
POWER SUPPLY PWB
437 VO
TP1
GND
D1
D2
D3
D4
D5
D6
D7
D10
Q1
Q2
R1
R2
R3
R4
R101
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C101
IC1
IC2
CN13
RY1
TF
P1
P2
GND
0 6 PB10130 A1-06 B1-01 C1 TRANS PWB ASS'Y
CN101
TP2
SW 12V
TP3
SW 5V
PB10130 -01-06
POWER
SUPPLY PWB
CN6
CN5
CN2
CN4
CN7
CN8
CN1
CN14
CP1
C24
C25
C26
437 VO
2 5 PB10130 A2-06 B2 C2
POWER PWB ASS'Y

– HEAT SINK –


0 9 PB30068 A-01 B C HEAT SINK PWB ASS'Y
PB30068 -01-02
HEAT SINK PWB
JVC D75VO
CN16
CN12
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
R5
R6
D8
D9
IC3
IC4
IC5

3.14 MECHANISM CONTROL SCHEMATIC DIAGRAM


05 MECHACON
Q101 2SC1740S(RS)
IC101 M50938A-303SP
Q102 2SC1740S(QRS)
D110, D111 11ES2
From/To 05 SERVO (Page 3-17)
INDEX
WRITE
SWD 5V
REV
F LYING ON
SLOW PULSE
OPT
From/To 04 AUDIO,CN6 (Page 3-33)
CN13
OPT
UNSW 5V
DATA 2
DATA 1
AUDIO CLK
DP OUT CTL
HIFI REC START
From/To 11 JOG/TIMER,CN2 (Page 3-44)
CN15
FRAME SERVO
REMOTE
C DATA
C CLOCK
COUNT PULSE
FWD/REV
JOG F/R
JOG PULSE
L DATA
L CLK
From/To 11 JOG/TIMER,CN3 (Page 3-44)
CN14
DATA Ø
DATA 1
DATA 2
STROBE
DEW
VIDEO FF
To DEW SENSOR
CN5
DEW
GND
From/To 05 SERVO (Page 3-17)
VIDEO FF
CAP REV
CAP FWD
SERVO
CAP REF
From/To 25 POWER,CN6 (Page 3-14)
CN1
POWER ON/OFF
UNSW 5V
UNREG 17V
MOTOR 12V
GND
SWD 5V
GND (M)
UNSW 12V
From/To 05 SERVO (Page 3-17)
COUNT PULSE
GND(M)
MOTOR 12V
UNREG 17V
AUDIO FF
From/To 04 AUDIO,CN7 (Page 3-33)
CN12
AUDIO FF
GND
VP ON
Q11 DTC114ES
CN3
MOTOR 12V
SOL DRIVE
SOL HOLD
To BRAKE SOLENOID
From/To 05 SERVO (Page 3-17)
REF SEL B
DRUM ON/OFF
V PULSE
CAP FG
S DATA
CN8
V DATA
CLOCK
DET OUT
S/S MODE
SP
LP
HEAD SEL
From/To 01 VIDEO MAIN,CN8 (Page 3-22)
HEAD SEL
LP
SP
S/S MODE
S CLOCK
From/To 05 SERVO (Page 3-17)
CAP FG(+)
CAP FG(−)
GND
MR FG(T)
MR GND
MR FG(L)
CN4
MR FG(L)
MR GND
MR FG(T)
REEL FG(SUP)
GND
REC SAFETY
CAP FG(−)
MODE SW 2
CAP FG(+)
MODE SW 1
REEL FG(TU)
END SENS
SWD 5V
MODE M (+)
CAP M (−)
MODE M (−)
CAP M (+)
REEL M (−)
REEL M (+)
S SW
From/To 51 DECK TERMINAL,CN1 (Page 3-19)
From/To 05 SERVO (Page 3-16)
CTL PULSE
CAP SPEED REF
V LOCK 1
V LOCK 2
CN11
V LOCK 2
V LOCK 1
C PAUSE
X7/X11
GND
From/To 22 TERMINAL,CN5 (Page 3-50)
CN2
GND
CASS M (−)
CASS M (+)
CASS SENS
MOTOR 12V
START SENS
UNSW 5V
From/To 56 CASS HOUSING,CN1 (Page 3-19)
IC101
VDD
Vref
D-A
PWM
HIFI REC START
POWER ON/OFF
SLOW PULSE
FLY ON
FWD/REV
SOL IN
WRITE
INDEX
S/S MODE
FRAM SERVO
DRUM ON
VP ON
CLK
L DATA
C CLK
C DATA
A DATA 1
A DATA 2
CAP FG
V DATA
S DATA
REMOTE
CN Vss
RESET
X IN
X OUT
Ø
Vss
DATA Ø
DATA 1
DATA 2
START
JOG F/R
DROP OUT
SYNC DET
VIDEO FF
REEL M(−)
REEL M(+)
CAP M(−)
CAP M(+)
CAP V
LCM 1
LCM 2
LCM 3
SERVO
SOL HOLD
END SENS
START SENS
SUPER
SPEED CMP
7/11
REC SAFE
LSB
LSA
C PAUSE
UL SW
REEL FG(TU)
REEL FG(SUP)
CTL PULSE
JOG PULSE
Q104 2SC3070
Q105 2SD1809
Q103 2SB1010(R)
Q105
Q104
Q103
Q101
R143 4.7K
R102 1K
RA101 2.7K X4
D105 HZS7.5EB2
R103 4.7K
R106 1.2K
R105 3.3K
R108 1K
R107 10K
R145 4.7K
R144 1K
R138 4.7K
R104 10K
CF101
R109 1M
C104 1/50
D113
R146 10K
C101 0.022
R147 330
R101 1.5K
L101 10
D104
D103
D102
D101
C102 3.3/25
C103 0.022
D104 HZS4.3EB2
C110 0.1
R126 4.7K
R127 4.7K
R128 4.7K
R129 4.7K
R139 4.7K
R140 4.7K
R141 4.7K
R142 4.7K
RA102 4.7K X 7
R124 120K
R122 4.7K
R121 4.7K
R120 4.7K
R119 4.7K
R118 4.7K
R117 4.7K
R116 4.7K
R115 4.7K
R114 4.7K
R113 4.7K
R112 4.7K
R111 4.7K
R110 4.7K
RA103 10K X 7
R136 4.7K
D214
D114
R123 15K
D109
R133 6.8K
D108
D112 MTZ5.6B
D112
C111 10/25
C105 10/25
C106 10/25
R131 8.2K
R148 330
R149 330
D107 HZS7.5EB2
R134 1.5K
R135 22K
C109 0.022
D106
C108 10/25
D106 ERA81-004
R130 330
C107 1/50
R132 10K
IC102 M54647L
NC
Vcc
Vcc
OUT2
IN2
GND
GND
IN2
OUT1
VR
IN+
IN−
IC103 BA6222
GND
OUT1
NC
VDD
IN1
IN2
Vcc
Vcc
NC
OUT2
IC104 BA6259N
GND
OUT2
OUT3
IN1
IN2
IN3
Vcc1
VR
Vcc2
OUT1
A
B
C
D
E
F
G
H
1
2
3
4
5
6

IC102 M54647L

MOTOR	MODE	PINS			
		INPUT		OUTPUT	
		5	8	4	9
REEL	FWD	H	L	L	H
	REV	L	H	H	L
BRAKE		H	H	L	L
STOP		L	L	O	O

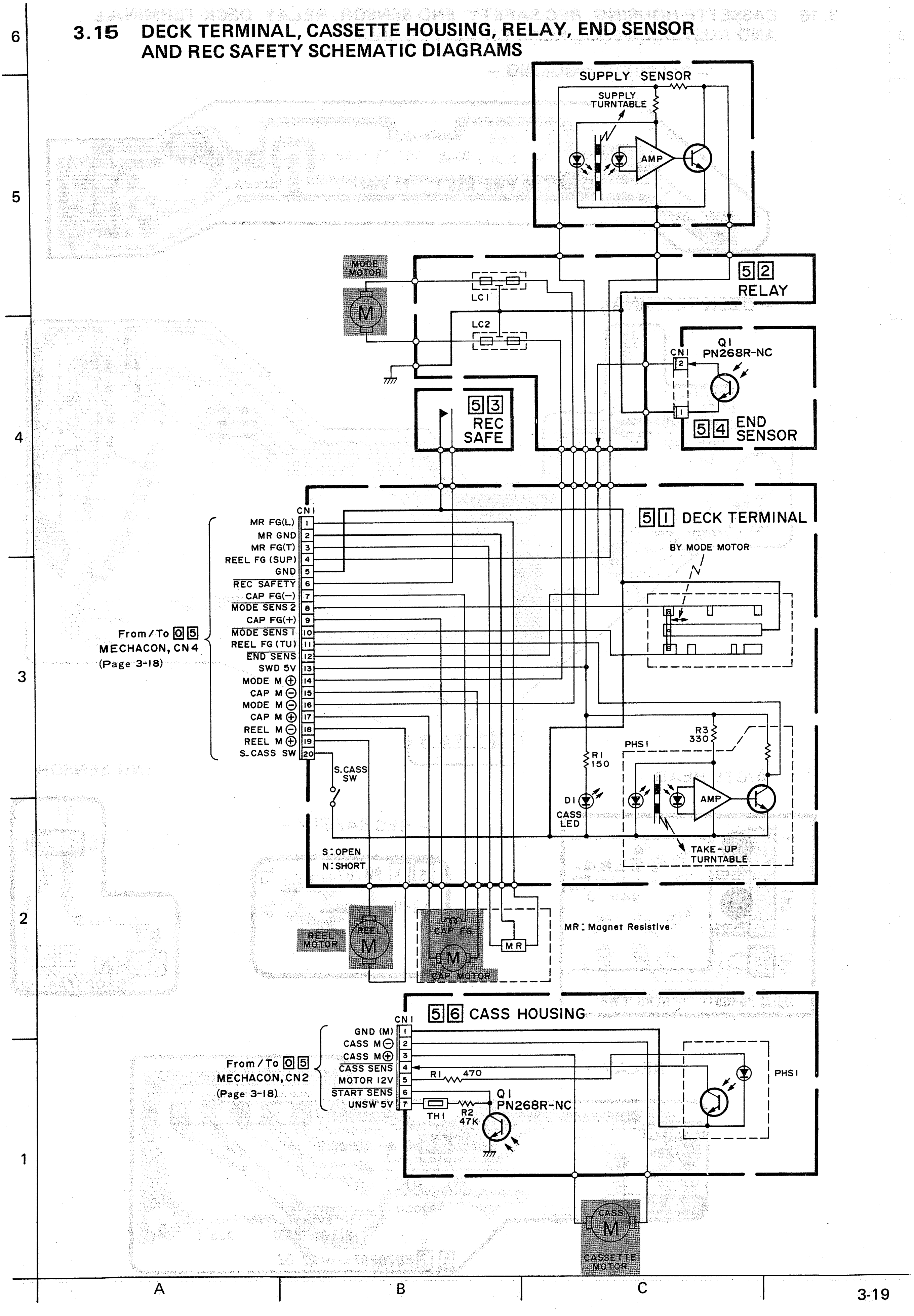
IC103 BA6222

MOTOR	MODE	PINS			
		INPUT		OUTPUT	
		5	6	2	10
CAPSTAN	FWD	H	L	H	L
	REV	L	H	L	H
BRAKE		H	H	L	L
STOP		L	L	O	O

IC104 BA6259N

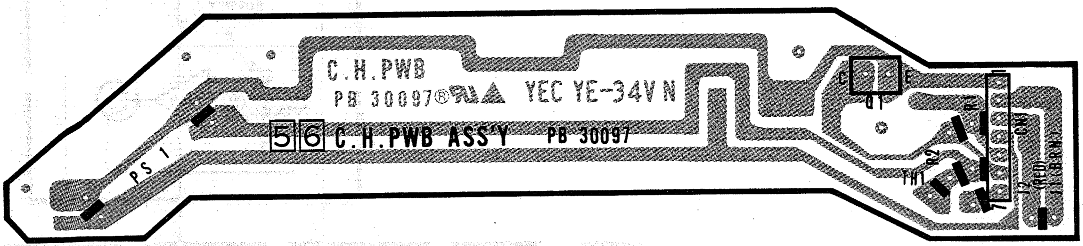
MOTOR	MODE	PINS					
		INPUT			OUTPUT		
		4	5	6	2	3	10
CASSETTE	FWD	H	L	L	L	O	H
	REV	H	L	H	H	O	L
MODE	FWD	L	H	L	O	L	H
	REV	L	H	H	O	H	L
BRAKE		L	L	X	L	L	L
STOP		L	L	X	O	O	O

3.15 DECK TERMINAL, CASSETTE HOUSING, RELAY, END SENSOR AND REC SAFETY SCHEMATIC DIAGRAMS

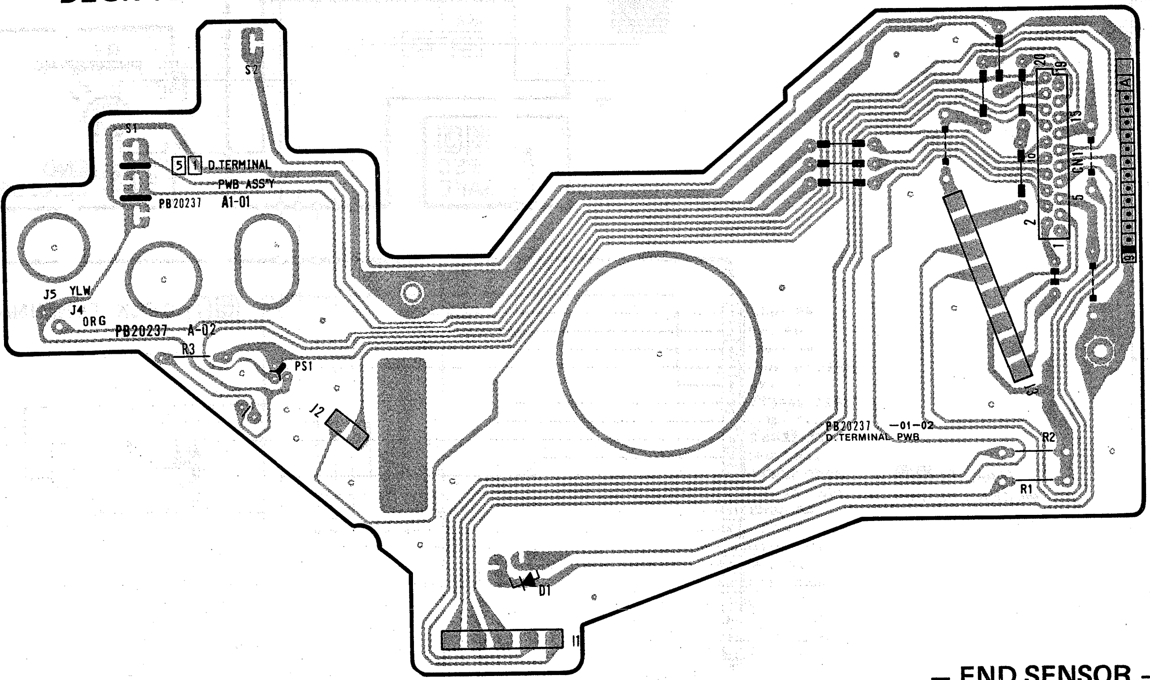

6
5
4
3
2
1
A
B
C
SUPPLY SENSOR
SUPPLY TURNTABLE
AMP
MODE MOTOR
M
LC1
LC2
5 2 RELAY
Q1 PN268R-NC
CN1
2
1
5 4 END SENSOR
5 3 REC SAFE
CN1
5 1 DECK TERMINAL
BY MODE MOTOR
MR FG(L) 1
MR GND 2
MR FG(T) 3
REEL FG (SUP) 4
GND 5
REC SAFETY 6
CAP FG(−) 7
MODE SENS 2 8
CAP FG(+) 9
MODE SENS 1 10
REEL FG (TU) 11
END SENS 12
SWD 5V 13
MODE M ⊕ 14
CAP M ⊖ 15
MODE M ⊖ 16
CAP M ⊕ 17
REEL M ⊖ 18
REEL M ⊕ 19
S.CASS SW 20
From/To 0 5 MECHACON, CN4 (Page 3-18)
S.CASS SW
S: OPEN
N: SHORT
R3 330
PHS1
R1 150
D1
CASS LED
AMP
TAKE-UP TURNTABLE
REEL MOTOR
REEL
M
CAP FG
M
CAP MOTOR
MR
MR: Magnet Resistive
5 6 CASS HOUSING
CN1
GND (M) 1
CASS M ⊖ 2
CASS M ⊕ 3
CASS SENS 4
MOTOR 12V 5
START SENS 6
UNSW 5V 7
From/To 0 5 MECHACON, CN2 (Page 3-18)
R1 470
TH1
R2 47K
Q1 PN268R-NC
PHS1
CASS
M
CASSETTE MOTOR

3.16 CASSETTE HOUSING, REC SAFETY, END SENSOR, RELAY, DECK TERMINAL AND AUDIO/CONTROL HEAD CIRCUIT BOARDS

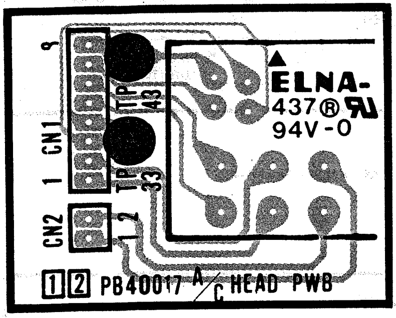
– CASSETTE HOUSING –


C.H.PWB
PB 30097
YEC YE-34V N
5 6 C.H.PWB ASS'Y PB 30097
PS 1
C
E
Q1
R1
R2
TH1
CN1
(RED)
(BRN)

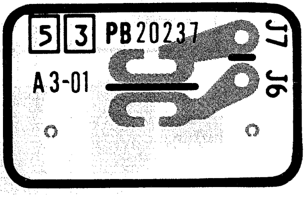
– DECK TERMINAL –


S2
S1
5 1 D.TERMINAL PWB ASS'Y
PB20237 A1-01
J5 YLW
J4 ORG
PB20237 A-02
R3
PS1
J2
PB20237 -01-02
D.TERMINAL PWB
R2
R1
D1
I1
CN1
20
19
13
16
2
1
5

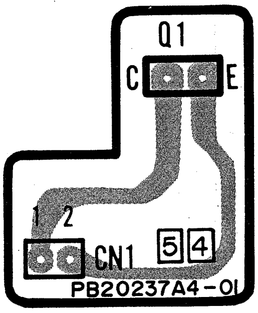
– A/CTL HEAD –


9
CN1
1
CN2
TP3
TP2
ELNA-
437®
94V-0
1 2 PB40017 A/C HEAD PWB

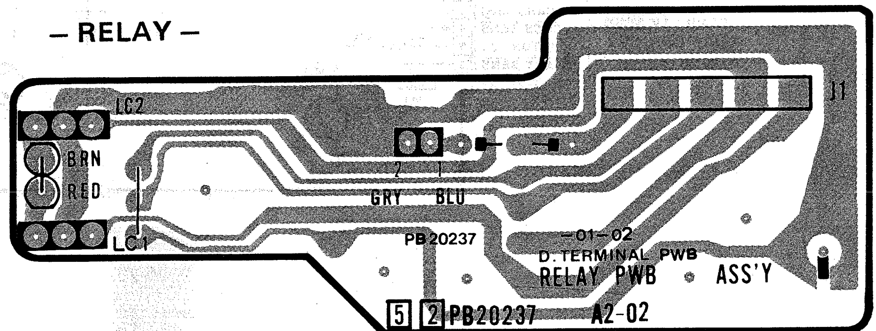
– REC SAFETY –


5 3 PB20237
A3-01
J7
J6

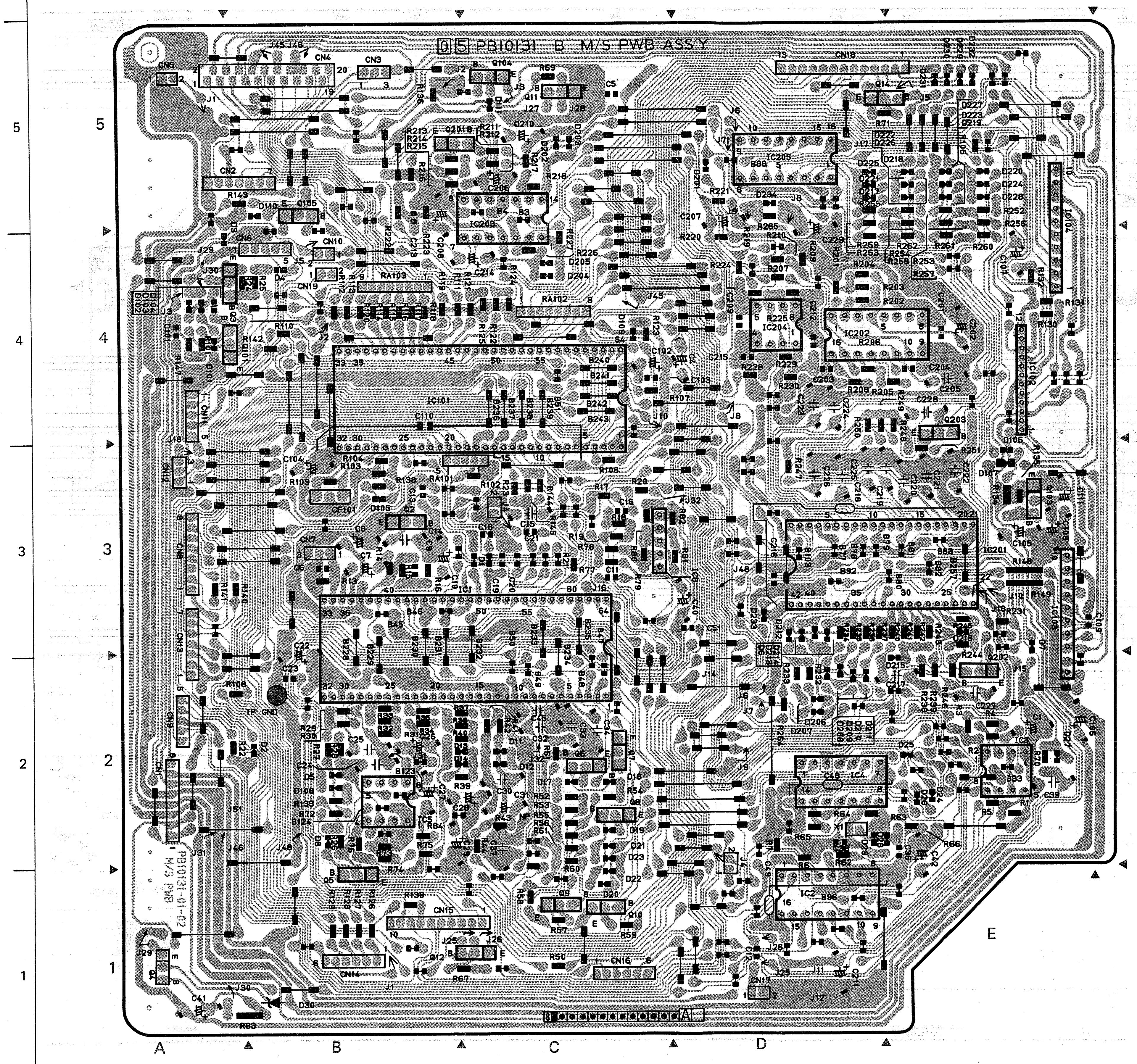
– END SENSOR –


Q1
C
E
1 2
CN1
5 4
PB20237A4-01

– RELAY –


LC2
BRN
RED
LC1
2 1
GRY BLU
J1
PB20237 -01-02
D.TERMINAL PWB
RELAY PWB ASS'Y
5 2 PB20237 A2-02

3.17 MECHANISM CONTROL/SERVO CIRCUIT BOARD



• Address table of MECHACON/SERVO circuit board

IC	
SYMBOL No.	ADDRESS No.
IC1	3-B, C
IC2	1, 2-D
IC3	2-E
IC4	2-D
IC6	3-D
IC101	4-B, C
IC102	4-E
IC103	3-E
IC104	5-E
IC201	3-D, E
IC202	4-D, E
IC203	5-C
IC204	4-D
IC205	5-D

TRANSISTOR	
SYMBOL No.	ADDRESS No.
Q2	3-B
Q3	4-B
Q4	1-A
Q5	2-B
Q6	2-C
Q7	2-C
Q8	2-C
Q9	1-C
Q10	1-C
Q11	5-C
Q12	1-C
Q14	5-E
Q101	4-B
Q103	3-E
Q104	5-C
Q105	5-B
Q201	5-C
Q202	3-E
Q203	4-E

DIODE	
SYMBOL No.	ADDRESS No.
D1	3-C
D2	2-B
D3	5-A
D4	4-B
D5	2-B
D8	2-B
D11	2-C
D12	2-C
D13	2-C
D14	2-C
D17	2-C
D18	2-C
D19	2-C
D20	2-C
D21	2-C
D22	2-C
D23	2-C
D24	2-E
D25	2-E
D26	2-E
D27	2-E
D30	1-B
D101	4-A
D102	4-A
D104	4-A
D105	3-B
D106	4-E
D107	4-E
D108	2-B
D109	4-C
D110	5-B
D201	5-D
D202	5-C
D203	5-C
D204	4-C
D205	4-C
D206	2-D
D207	2-D
D208	3-D
D209	3-D
D210	3-D
D211	3-E
D212	3-D
D213	3-D
D214	3-D
D215	3-E
D216	3-E
D217	5-E
D218	5-E
D219	5-E
D220	5-E
D221	5-E
D222	5-E
D223	5-E
D224	5-E
D225	5-E
D226	5-E
D227	5-E
D228	5-E
D229	5-E
D230	5-E
D231	5-E
D232	5-E
D233	3-E
D234	5-D

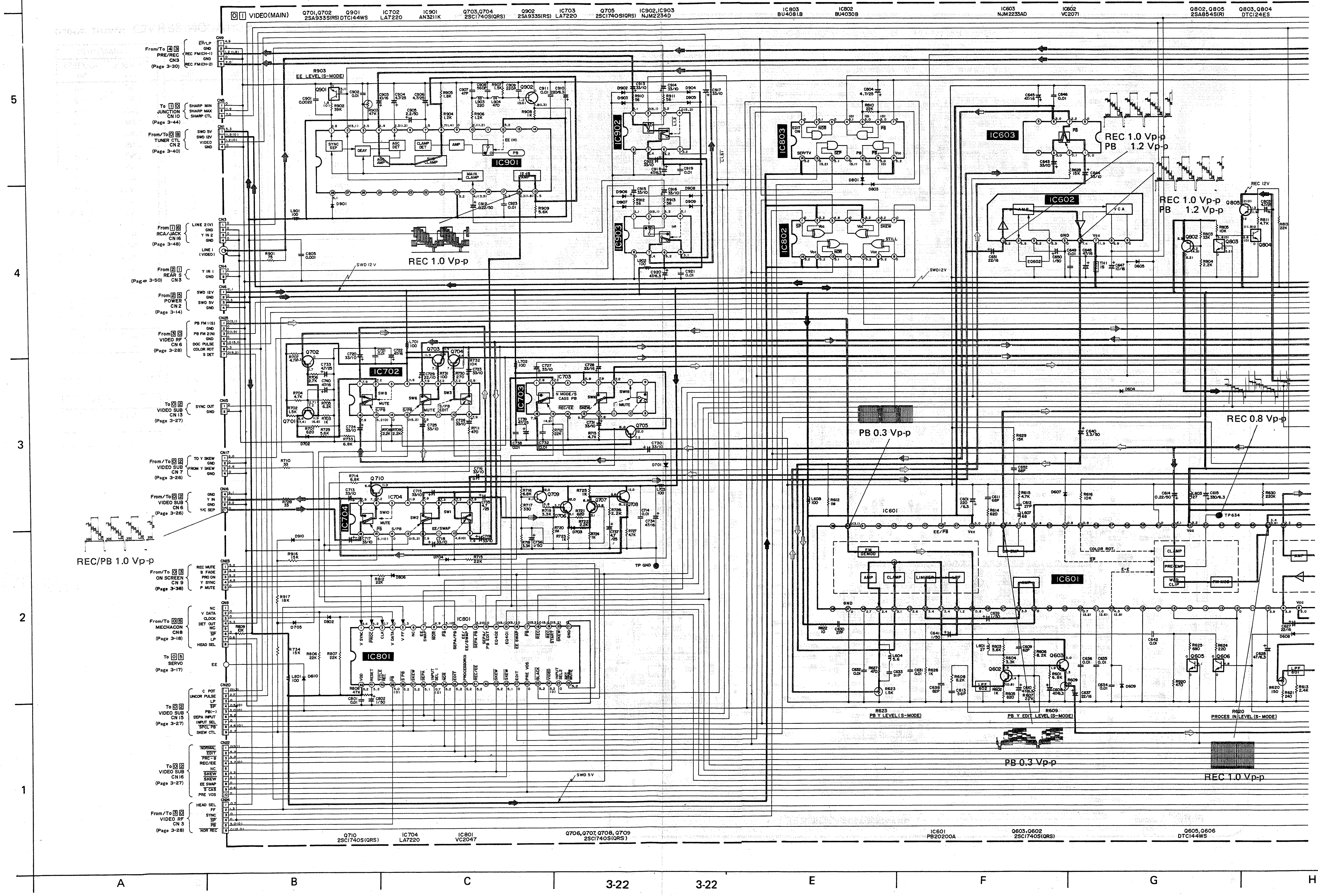
CONNECTOR	
SYMBOL No.	ADDRESS No.
CN1	2-A
CN2	5-B
CN3	5-B
CN4	5-B
CN5	5-A
CN6	5-B
CN7	3-B
CN8	3-A
CN9	2-A
CN10	5-B
CN11	4-A
CN12	3, 4-A
CN13	3-A
CN14	1-B
CN15	1-B, C
CN16	1-C
CN17	1-D
CN18	5-D
CN19	4-B

COIL	
SYMBOL No.	ADDRESS No.
L101	4-B

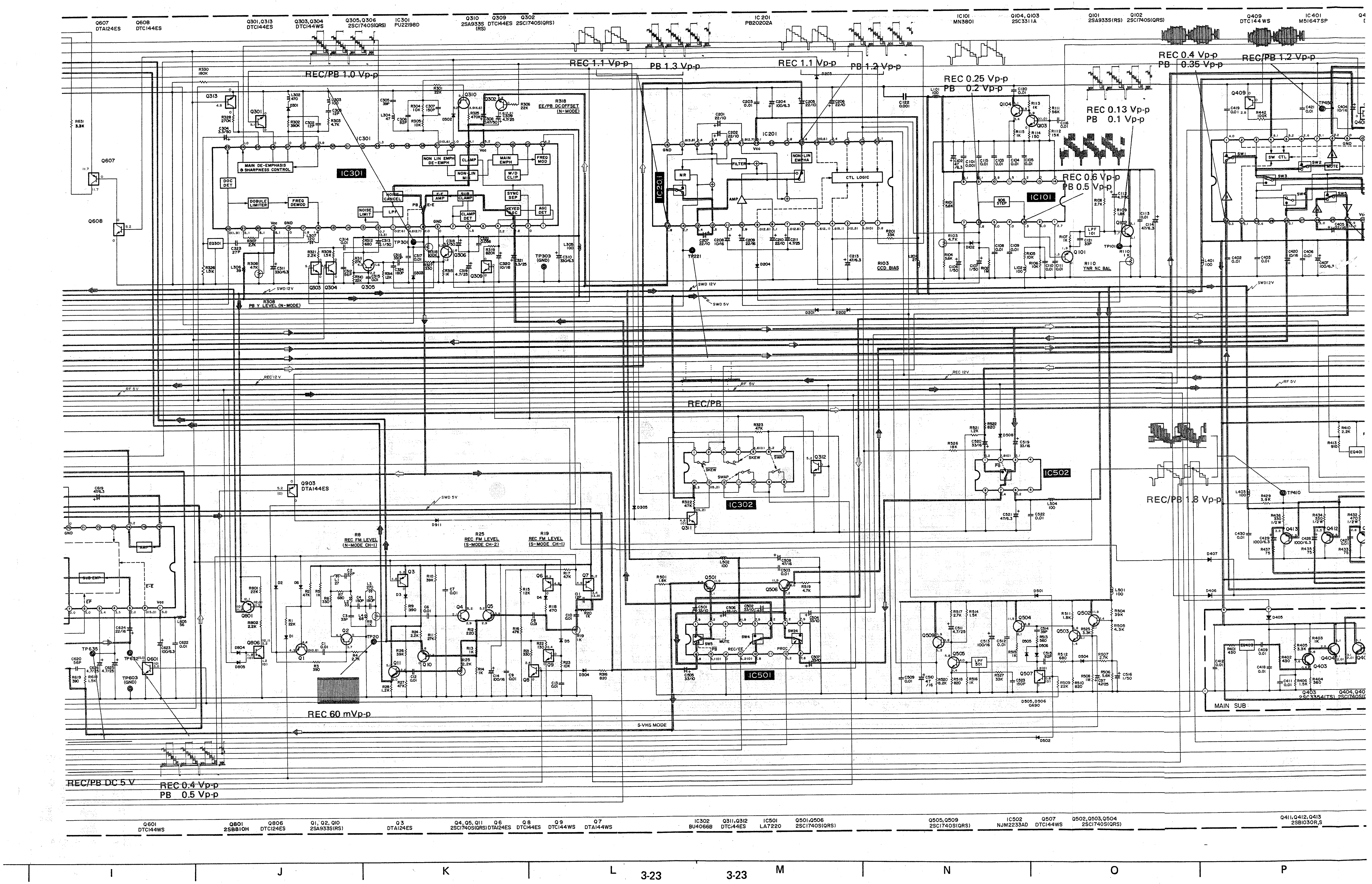
TEST PIN	
SYMBOL No.	ADDSESS No.
TP GND	2-E

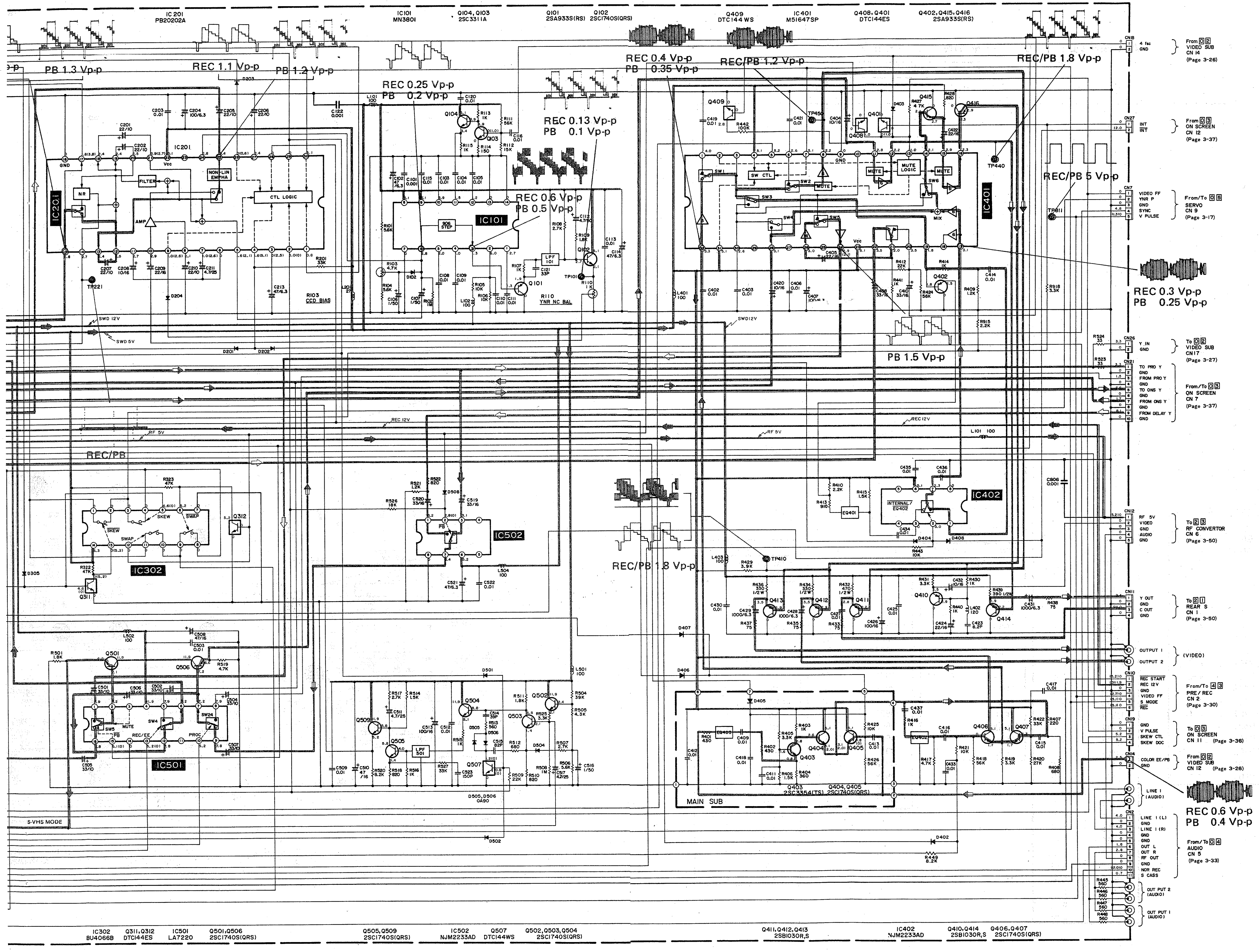
A B C D E F G H

3.18 VIDEO MAIN SCHEMATIC DIAGRAM



01 VIDEO(MAIN)
Q701,Q702 2SA933S(RS)
Q901 DTC144WS
IC702 LA7220
IC901 AN3211K
Q703,Q704 2SC1740S(QRS)
Q902 2SA933S(RS)
IC703 LA7220
Q705 2SC1740S(QRS)
IC902,IC903 NJM2234D
IC803 BU4081B
IC802 BU4030B
IC603 NJM2233AD
IC602 VC2071
Q802,Q805 2SA854S(R)
Q803,Q804 DTC124ES
From/To 4 3 PRE/REC CN3 (Page 3-30)
To 1 0 JUNCTION CN10 (Page 3-44)
From/To 0 8 TUNER CTL CN2 (Page 3-40)
From 1 6 RCA/JACK CN16 (Page 3-48)
From 2 1 REAR S CN3 (Page 3-50)
From 2 5 POWER CN2 (Page 3-14)
From 3 0 VIDEO RF CN6 (Page 3-28)
To 0 2 VIDEO SUB CN13 (Page 3-27)
From/To 0 2 VIDEO SUB CN7 (Page 3-26)
From/To 0 2 VIDEO SUB CN6 (Page 3-26)
From/To 0 3 ON SCREEN CN9 (Page 3-38)
From/To 0 5 MECHACON CN8 (Page 3-18)
To 0 5 SERVO (Page 3-17)
To 0 2 VIDEO SUB CN15 (Page 3-27)
To 0 2 VIDEO SUB CN16 (Page 3-27)
From/To 3 0 VIDEO RF CN3 (Page 3-28)
IC901
IC902
IC903
IC803
IC802
IC603
IC602
IC702
IC703
IC704
IC801
IC601
R903 EE LEVEL(S-MODE)
REC 1.0 Vp-p
REC 1.0 Vp-p PB 1.2 Vp-p
REC 1.0 Vp-p PB 1.2 Vp-p
PB 0.3 Vp-p
REC 0.8 Vp-p
REC/PB 1.0 Vp-p
PB 0.3 Vp-p
REC 1.0 Vp-p
R623 PB Y LEVEL(S-MODE)
R609 PB Y EDIT LEVEL(S-MODE)
R620 PROCES IN LEVEL(S-MODE)
SWD 12 V
SWD 5 V
TP GND
TP634
Q710 2SC1740S(QRS)
IC704 LA7220
IC801 VC2047
Q706,Q707,Q708,Q709 2SC1740S(QRS)
IC601 PB20200A
Q603,Q602 2SC1740S(QRS)
Q605,Q606 DTC144WS
6
5
4
3
2
1
A
B
C
E
F
G
H


Q607 DTA124ES
Q608 DTC144ES
Q301,Q313 DTC144ES
Q303,Q304 DTC144WS
Q305,Q306 2SC1740S(QRS)
IC301 PU2219BD
Q310 2SA933S(RS)
Q309 DTC144ES
Q302 2SC1740S(QRS)
IC201 PB20202A
IC101 MN3801
Q104,Q103 2SC3311A
Q101 2SA933S(RS)
Q102 2SC1740S(QRS)
Q409 DTC144WS
IC401 M51647SP
REC/PB 1.0 Vp-p
REC 1.1 Vp-p
PB 1.3 Vp-p
REC 1.1 Vp-p
PB 1.2 Vp-p
REC 0.25 Vp-p
PB 0.2 Vp-p
REC 0.13 Vp-p
PB 0.1 Vp-p
REC 0.4 Vp-p
PB 0.35 Vp-p
REC/PB 1.2 Vp-p
REC 0.6 Vp-p
PB 0.5 Vp-p
IC301
IC201
IC101
MAIN DE-EMPHASIS & SHARPNESS CONTROL
NON LIN EMPH DE-EMPH
CLAMP
NON-LIN MIX
MAIN EMPH
FREQ MOD
W/D CLIP
SYNC SEP
KEYED AGC
AGC DET
DOC DET
DOBULE LIMITER
FREQ DEMOD
NOISE CANCEL
NOISE LIMIT
LPF
E-E AMP
SUB CLAMP
CLAMP DET
NR
FILTER
AMP
NON-LIN EMPHA
CTL LOGIC
906 STEP
SW CTL
MUTE
TP301
TP303 (GND)
TP221
TP101
TP450
R318 EE/PB DCOFFSET (N-MODE)
R103 CCD BIAS
R110 YNR NC BAL
R308 PB Y LEVEL (N-MODE)
SWD 12V
SWD 5V
REC 12V
RF 5V
REC/PB
IC302
SKEW
SWAP
IC502
REC/PB 1.8 Vp-p
TP410
Q903 DTA144ES
R8 REC FM LEVEL (N-MODE CH-1)
R25 REC FM LEVEL (S-MODE CH-2)
R19 REC FM LEVEL (S-MODE CH-1)
TP20
REC 60 mVp-p
IC501
REC/EE
MUTE
PROC
S-VHS MODE
MAIN SUB
TP603 (GND)
TP635
E-E
SUB EMP
AMP
REC/PB DC 5 V
REC 0.4 Vp-p
PB 0.5 Vp-p
Q601 DTC144WS
Q801 2SB810H
Q806 DTC124ES
Q1, Q2, Q10 2SA933S(RS)
Q3 DTA124ES
Q4, Q5, Q11 2SC1740S(QRS)
Q6 DTA124ES
Q8 DTC144ES
Q9 DTC144WS
Q7 DTA144WS
IC302 BU4066B
Q311,Q312 DTC144ES
IC501 LA7220
Q501,Q506 2SC1740S(QRS)
Q505,Q509 2SC1740S(QRS)
IC502 NJM2233AD
Q507 DTC144WS
Q502,Q503,Q504 2SC1740S(QRS)
Q411,Q412,Q413 2SB1030R,S
Q403 2SC3354(TS)
I
J
K
L
M
N
O
P


IC201 PB20202A
IC101 MN3801
Q104, Q103 2SC3311A
Q101 2SA933S(RS)
Q102 2SC1740S(QRS)
Q409 DTC144WS
IC401 M51647SP
Q408, Q401 DTC144ES
Q402, Q415, Q416 2SA933S(RS)
PB 1.3 Vp-p
REC 1.1 Vp-p
PB 1.2 Vp-p
REC 0.25 Vp-p
PB 0.2 Vp-p
REC 0.13 Vp-p
PB 0.1 Vp-p
REC 0.6 Vp-p
PB 0.5 Vp-p
REC 0.4 Vp-p
PB 0.35 Vp-p
REC/PB 1.2 Vp-p
REC/PB 1.8 Vp-p
REC/PB 5 Vp-p
REC 0.3 Vp-p
PB 0.25 Vp-p
PB 1.5 Vp-p
REC/PB 1.8 Vp-p
REC 0.6 Vp-p
PB 0.4 Vp-p
IC201
IC101
IC401
IC402
IC502
IC302
IC501
NR
FILTER
NON-LIN EMPHA
CTL LOGIC
AMP
GND
Vcc
906 STEP
LPF 101
LPF 501
SW CTL
MUTE
MUTE LOGIC
MIX
SW1
SW2
SW3
SW4
SW5
SW6
SW24
PROC
REC/EE
SKEW
SWAP
INTERNAL/EQ402
EQ401
EQ403
EQ402
TP221
TP101
TP450
TP440
TP811
TP410
R103 CCD BIAS
R110 YNR NC BAL
SWD 12V
SWD 5V
SWD12V
REC 12V
RF 5V
REC/PB
S-VHS MODE
MAIN SUB
Q403 2SC3354(TS)
Q404, Q405 2SC1740S(QRS)
CN18
4 fsc
GND
From 0 2 VIDEO SUB CN 14 (Page 3-26)
CN27
INT
INT
From 0 3 ON SCREEN CN 12 (Page 3-37)
CN7
VIDEO FF
YNR P
GND
SYNC
V PULSE
From/To 0 5 SERVO CN 9 (Page 3-17)
CN26
Y IN
GND
To 0 2 VIDEO SUB CN17 (Page 3-27)
CN21
TO PRO Y
GND
FROM PRO Y
GND
TO ONS Y
GND
FROM ONS Y
GND
FROM DELAY Y
GND
From/To 0 3 ON SCREEN CN 7 (Page 3-37)
CN12
RF 5V
VIDEO
GND
AUDIO
GND
To 2 3 RF CONVERTOR CN 6 (Page 3-50)
CN11
Y OUT
GND
C OUT
GND
To 2 1 REAR S CN 1 (Page 3-50)
OUTPUT 1
OUTPUT 2
(VIDEO)
CN10
REC START
REC 12V
GND
VIDEO FF
S MODE
REC
From/To 4 3 PRE/REC CN 2 (Page 3-30)
CN19
GND
V PULSE
SKEW CTL
SKEW DOC
To 0 3 ON SCREEN CN 11 (Page 3-36)
CN14
COLOR EE/PB
GND
From 0 2 VIDEO SUB CN 12 (Page 3-26)
LINE 1 (AUDIO)
CN2
LINE 1 (L)
GND
LINE 1 (R)
GND
GND
OUT L
OUT R
RF OUT
GND
NOR REC
S CASS
From/To 0 4 AUDIO CN 5 (Page 3-33)
R445 560
R446 560
R447 560
R448 560
OUT PUT 2 (AUDIO)
OUT PUT 1 (AUDIO)
IC302 BU4066B
Q311, Q312 DTC144ES
IC501 LA7220
Q501, Q506 2SC1740S(QRS)
Q505, Q509 2SC1740S(QRS)
IC502 NJM2233AD
Q507 DTC144WS
Q502, Q503, Q504 2SC1740S(QRS)
Q411, Q412, Q413 2SB1030R,S
IC402 NJM2233AD
Q410, Q414 2SB1030R,S
Q406, Q407 2SC1740S(QRS)

• Address table of VIDEO SUB circuit board

IC	
SYMBOL No.	ADDRESS No.
IC1	2-F
IC2	2-F
IC3	2-E
IC4	5-E
IC5	3-F
IC201	4-C, D
IC301	2, 3-B
IC302	5-B
IC303	3, 4-B
IC304	4-B
IC305	2-D
IC401	2-C, D

DIODE	
SYMBOL No.	ADDRESS No.
D1	2-F
D2	2-F
D3	2-F
D4	2-F
D5	4-D
D6	5-D
D7	3-C
D8	2-F
D9	3-E
D10	6-E
D11	4-F
D12	5-F
D13	2-E
D14	2-D
D15	3-C
D201	4-F

CONNECTOR	
SYMBOL No.	ADDRESS No.
CN1	2-D
CN2	2-F
CN3	2-F
CN4	3-E
CN5	2-E
CN7	3-B
CN9	3-B
CN10	3-F
CN11	5-F
CN14	4, 5-B

TRANSISTOR	
SYMBOL No.	ADDRESS No.
Q1	5-F
Q2	5-F
Q3	3-F
Q4	3-F
Q5	3-E
Q6	5-E
Q7	5-D
Q8	3-F
Q9	3-E
Q10	3-F
Q11	4-F
Q12	4, 5-F
Q13	4, 5-F
Q14	4, 5-E
Q15	5-E
Q16	3-E
Q17	3-E
Q18	3-E
Q20	4-E
Q21	4-E
Q22	4-E
Q23	4-E
Q25	4-E
Q28	5-F
Q30	4-F
Q201	5-D
Q202	4-C
Q203	4-C
Q204	3-C
Q305	5-B
Q306	5-B
Q308	2-B
Q309	2-B
Q310	2-B
Q311	2-A
Q312	3-B
Q313	5-B
Q314	3-B
Q401	3-D
Q402	3-D
Q403	3-D
Q405	3-D
Q406	5-C

COIL	
SYMBOL No.	ADDRESS No.
L1	2-F
L2	2-E
L3	5, 6-F
L5	5-F
L6	5-E
L7	6-D
L8	5-E
L9	4-E
L10	2-F
L11	4-F
L12	4-F
L14	5-F
L202	3-C
L203	3-D
L204	3-B
L301	2-B
L302	5-B
L303	4-B
L304	3-B
L305	4-B
L306	3-B
L307	4-B
L308	2-B
L309	5-B
L401	3-D
L402	3-D
L403	3-D
L404	2-C
L405	3-C

TEST PIN	
SYMBOL No.	ADDRESS No.
TP GND1	4-E
TP GND2	4-F
TP7	4-F
TP13	3-E
TP21	5-D
TP24	5-E
TP25	5-F
TP26	4-D
TP201	3-B
TP202	3-D
TP203	4-D
TP204	4-D
TP205	3-C
TP206	3-C
TP207	2-B
TP401	2-C
TP402	2, 3-C
TP403	2-C, D
TP404	2-D
TP405	2-C

• Address table of VIDEO MAIN circuit board

IC	
SYMBOL No.	ADDRESS No.
IC101	2-B
IC201	2-C
IC301	4-C, D
IC302	3-C
IC401	4-F
IC402	4-G
IC501	4-G
IC502	3-G
IC601	5-C, D
IC602	4-E
IC603	5-F
IC702	3-F
IC703	3-B
IC704	2, 3-F
IC801	2-D, E
IC802	3-D
IC803	3-E
IC901	2-F
IC902	2-G
IC903	2-G

TRANSISTOR	
SYMBOL No.	ADDRESS No.
Q1	4-B
Q2	4-B
Q3	5-B
Q4	4-B
Q5	5-B
Q6	5-B
Q7	4, 5-B
Q8	4-B
Q9	4-A
Q10	4-A
Q11	5-A
Q101	2-B
Q102	2-B
Q103	2-A
Q104	2-A
Q301	3-D
Q302	3-C
Q303	4-D
Q304	4-D
Q305	4-C
Q306	4-C
Q309	3-C
Q310	3-C
Q311	3-C
Q312	3-C
Q313	3-D
Q401	4-E
Q402	4-G
Q403	1-D
Q406	5-F
Q407	5-F
Q408	5-F
Q409	4-F
Q410	4-G
Q411	5-G
Q412	5-G
Q413	5-G
Q414	5-G
Q415	5-F
Q416	5-G

TRANSISTOR	
SYMBOL No.	ADDRESS No.
Q501	4-F, G
Q502	4-A
Q503	4-B
Q504	3-A, B
Q505	3-B
Q506	4-G
Q507	4-B
Q509	3-B
Q601	4-B
Q602	5-E
Q603	5-D
Q605	4-C
Q606	4-C
Q701	3-F
Q702	3-G
Q703	4-F
Q704	4-F
Q705	3-A, B
Q706	3-F
Q707	3-F
Q708	3-E
Q709	3-F
Q710	3-F
Q801	3-G
Q802	3-G
Q803	3-D
Q804	3-E
Q805	3-E
Q806	4-B
Q901	2-F
Q902	2-F
Q903	4-E

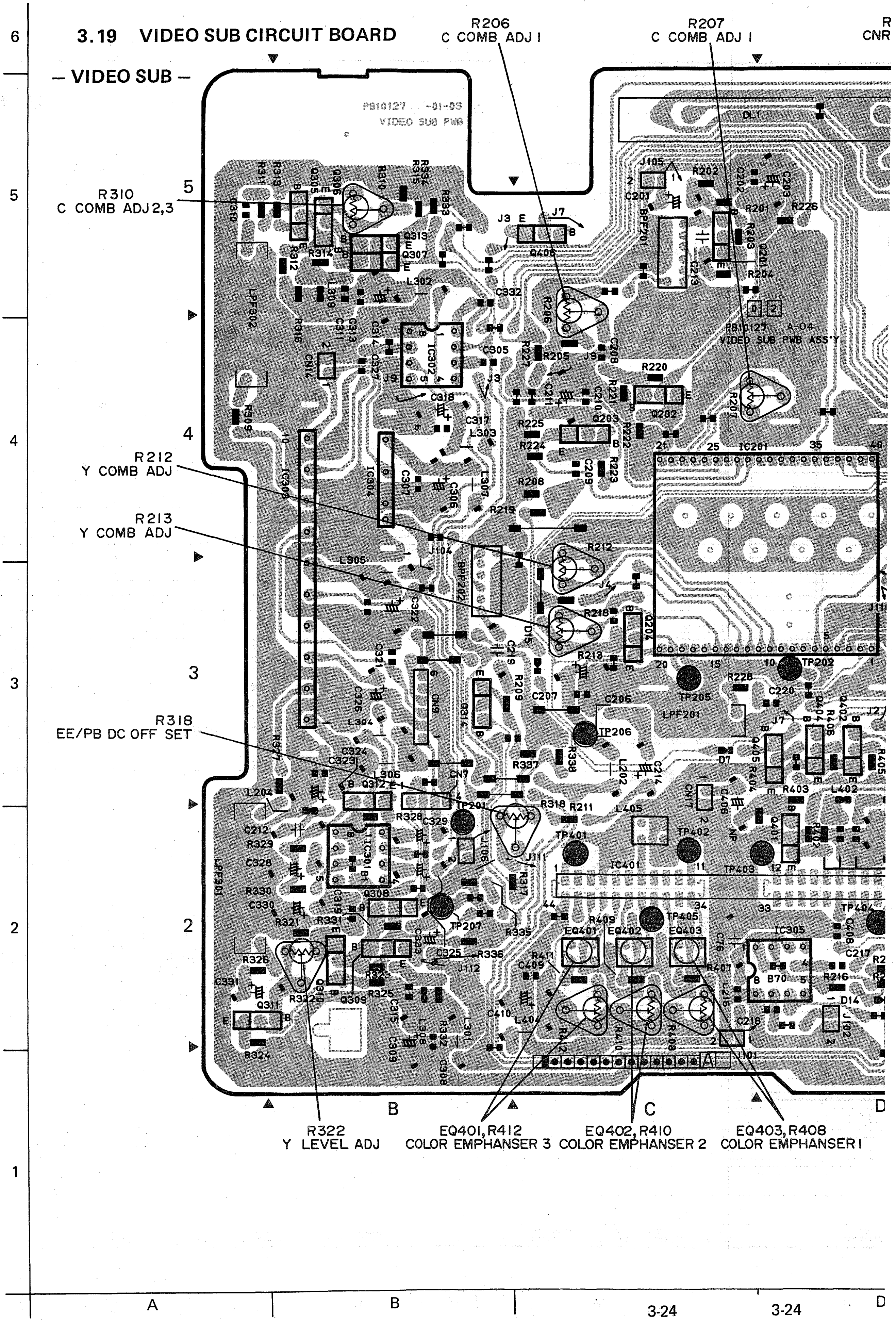
TEST PIN	
SYMBOL No.	ADDRESS No.
TP GND	3-E
TP20	4-A
TP101	2-C
TP221	2-D
TP303	4-C
TP310	3-C
TP410	5-G
TP440	5-G
TP450	5-G
TP603	5-D
TP632	5-C
TP634	5-C
TP635	5-C
TP811	2-D
TP901	2-F, G

DIODE	
SYMBOL No.	ADDRESS No.
D1	4-B
D2	4-B
D3	5-A
D4	5-B
D5	4-A
D6	4-B
D102	2-A
D201	2-C
D202	3-C
D203	2-C
D204	2-C
D301	3-D
D302	3-C
D303	4-D
D304	2-E
D305	3-D
D402	5-F
D403	4-E
D404	4-G
D406	5-F
D407	5-F
D408	4-G
D501	4-B
D502	4-B
D504	4-B
D505	3-B
D506	3-B
D508	3-E
D604	4-E
D605	4-E, F
D607	4-C
D608	4-C
D609	5-D
D610	5-D
D701	3-B
D702	3-F
D703	3-F
D704	2-E
D705	4-E
D801	3-E
D802	2-D
D803	4-E
D804	4-C
D805	4-C
D806	2-E
D901	2-F
D902	2-G
D903	2-G
D904	2-G
D905	2-G
D906	2-G
D907	2-G
D908	2-G
D909	2-G
D910	2-F
D911	4-E

COIL	
SYMBOL No.	ADDRESS No.
L1	4-B
L2	4-B
L3	4-B
L4	4-B
L101	3-B
L102	3-B
L201	2-C
L302	3-D
L303	3-D
L304	4-C
L305	4-C
L306	4-D
L307	4-D
L401	4-F
L402	5-G
L403	5-G
L501	3-A
L502	4-F
L504	3-G
L601	5-D
L603	4-C
L604	5-E
L605	4-C
L607	5-D
L608	4-D
L701	4-F
L702	3-B
L703	3-E
L801	2-D
L901	2-F
L902	2-G
L903	2-F
L904	2-F

CONNECTOR	
SYMBOL No.	ADDRESS No.
CN1	2-G
CN2	3-G
CN3	2-G
CN4	2-G
CN5	4-E
CN6	2, 3-G
CN7	2-C
CN8	2-D
CN9	4-A
CN10	3-D
CN11	5-G
CN12	4-G
CN14	5-G
CN15	3-C
CN16	3-E
CN19	3-C
CN20	2-D
CN21	3-G
CN22	2-D
CN23	2-E
CN24	2-C
CN25	4-E
CN26	3-G
CN27	4-E

3.19 VIDEO SUB CIRCUIT BOARD


– VIDEO SUB –
R206
C COMB ADJ I
R207
C COMB ADJ I
R
CNR
R310
C COMB ADJ 2,3
R212
Y COMB ADJ
R213
Y COMB ADJ
R318
EE/PB DC OFF SET
R322
Y LEVEL ADJ
EQ401, R412
COLOR EMPHANSER 3
EQ402, R410
COLOR EMPHANSER 2
EQ403, R408
COLOR EMPHANSER I
PB10127 -01-03
VIDEO SUB PWB
PB10127 A-04
VIDEO SUB PWB ASS'Y
IC201
IC302
IC303
IC304
IC401
IC305
IC301
TP201
TP202
TP205
TP206
TP207
TP401
TP402
TP403
TP404
TP405
DL1
LPF201
LPF301
LPF302
BPF201
BPF202
6
5
4
3
2
1
A
B
C
D

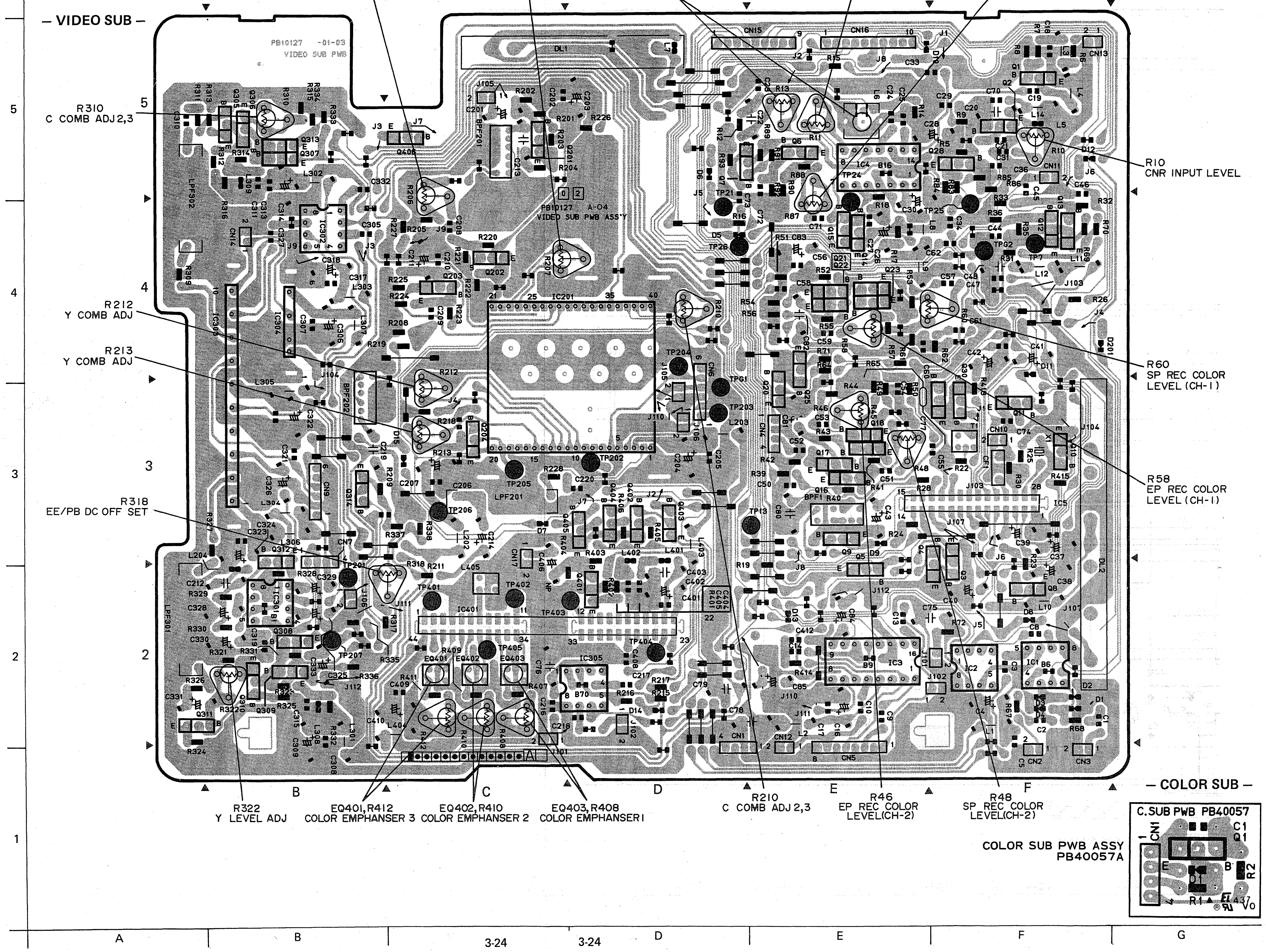
oard

DIODE	
BOL o.	ADDRESS No.
	4-B
2	4-B
3	5-A
4	5-B
5	4-A
6	4-B
02	2-A
201	2-C
202	3-C
203	2-C
204	2-C
301	3-D
302	3-C
303	4-D
304	2-E
305	3-D
402	5-F
403	4-E
404	4-G
406	5-F
407	5-F
408	4-G
501	4-B
502	4-B
504	4-B
505	3-B
506	3-B
508	3-E
604	4-E
605	4-E, F
607	4-C
608	4-C
609	5-D
610	5-D
701	3-B
702	3-F
703	3-F
704	2-E
705	4-E
301	3-E
302	2-D
303	4-E
304	4-C
305	4-C
306	2-E
901	2-F
902	2-G
903	2-G
904	2-G
905	2-G
906	2-G
07	2-G
08	2-G
909	2-G
910	2-F
911	4-E

COIL	
SYMBOL No.	ADDRESS No.
L1	4-B
L2	4-B
L3	4-B
L4	4-B
L101	3-B
L102	3-B
L201	2-C
L302	3-D
L303	3-D
L304	4-C
L305	4-C
L306	4-D
L307	4-D
L401	4-F
L402	5-G
L403	5-G
L501	3-A
L502	4-F
L504	3-G
L601	5-D
L603	4-C
L604	5-E
L605	4-C
L607	5-D
L608	4-D
L701	4-F
L702	3-B
L703	3-E
L801	2-D
L901	2-F
L902	2-G
L903	2-F
L904	2-F

CONNECTOR	
SYMBOL No.	ADDRESS No.
CN1	2-G
CN2	3-G
CN3	2-G
CN4	2-G
CN5	4-E
CN6	2, 3-G
CN7	2-C
CN8	2-D
CN9	4-A
CN10	3-D
CN11	5-G
CN12	4-G
CN14	5-G
CN15	3-C
CN16	3-E
CN19	3-C
CN20	2-D
CN21	3-G
CN22	2-D
CN23	2-E
CN24	2-C
CN25	4-E
CN26	3-G
CN27	4-E

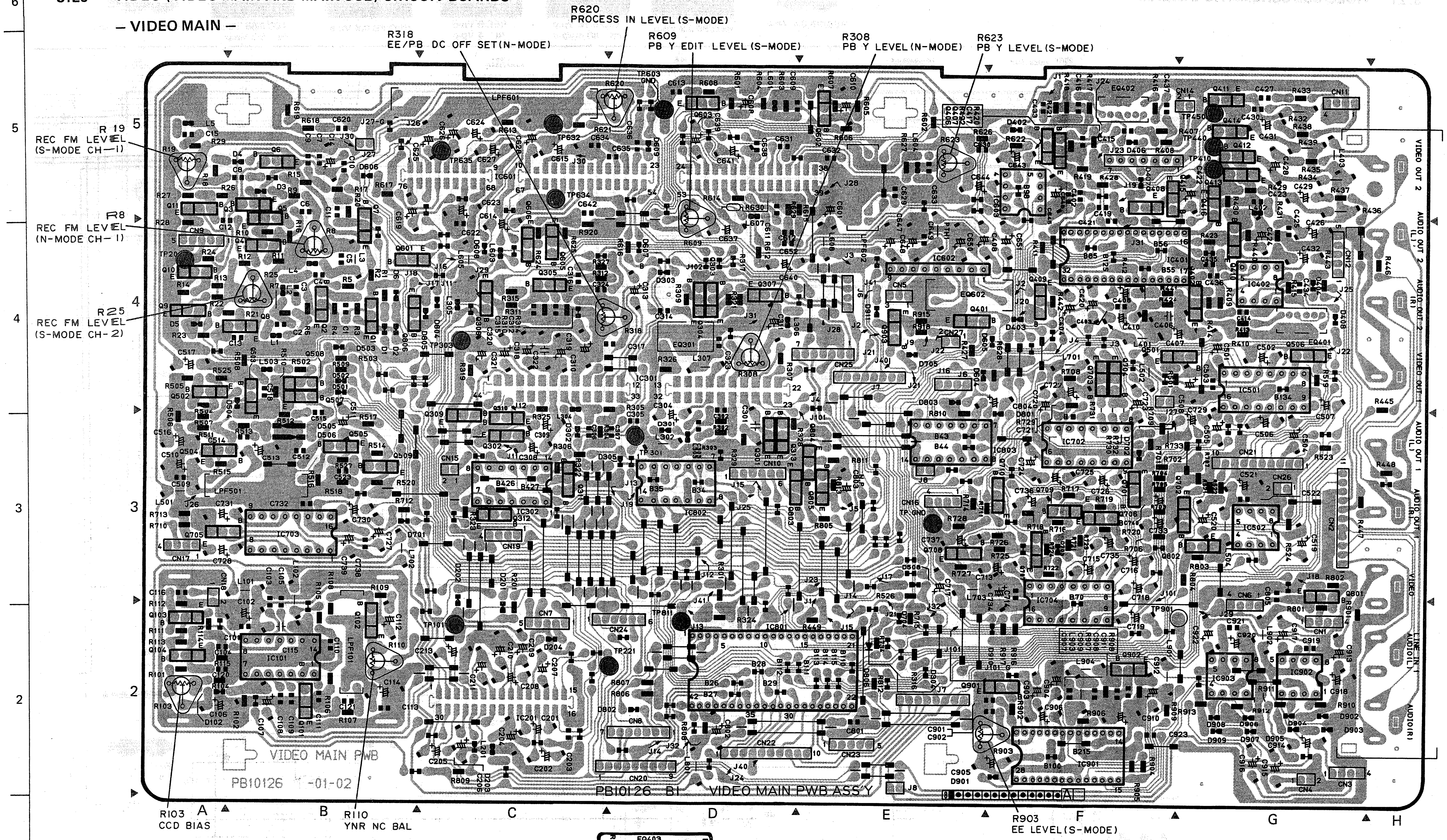
3.19 VIDEO SUB CIRCUIT BOARD



– VIDEO SUB –
R206
C COMB ADJ I
R207
C COMB ADJ I
R13, L6
CNR NC BAL
R11
CNR FB
R87
COLOR OUTPUT LEVEL
R310
C COMB ADJ 2,3
R10
CNR INPUT LEVEL
R212
Y COMB ADJ
R213
Y COMB ADJ
R60
SP REC COLOR LEVEL (CH-1)
R58
EP REC COLOR LEVEL (CH-1)
R318
EE/PB DC OFF SET
R322
Y LEVEL ADJ
EQ401, R412
COLOR EMPHANSER 3
EQ402, R410
COLOR EMPHANSER 2
EQ403, R408
COLOR EMPHANSER 1
R210
C COMB ADJ 2,3
R46
EP REC COLOR LEVEL(CH-2)
R48
SP REC COLOR LEVEL(CH-2)
PB10127 -01-03
VIDEO SUB PWB
PB10127 A-04
VIDEO SUB PWB ASS'Y
– COLOR SUB –
C.SUB PWB PB40057
COLOR SUB PWB ASSY
PB40057A
6
5
4
3
2
1
A
B
C
D
E
F
G

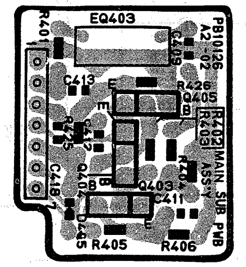
3.20 VIDEO (VIDEO MAIN AND MAIN SUB) CIRCUIT BOARDS

– VIDEO MAIN –



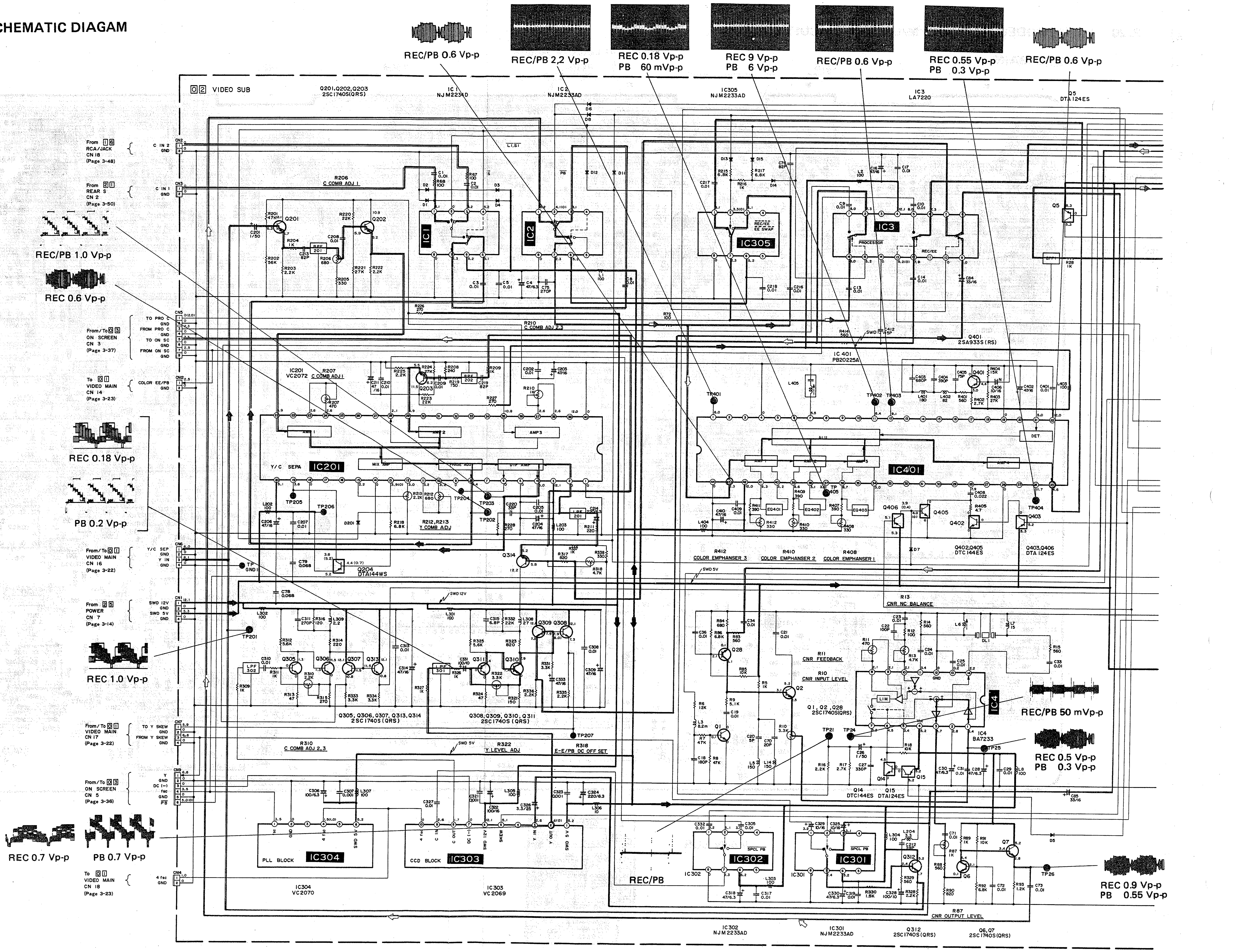
R620
PROCESS IN LEVEL (S-MODE)
R318
EE/PB DC OFF SET (N-MODE)
R609
PB Y EDIT LEVEL (S-MODE)
R308
PB Y LEVEL (N-MODE)
R623
PB Y LEVEL (S-MODE)
R19
REC FM LEVEL
(S-MODE CH-1)
R8
REC FM LEVEL
(N-MODE CH-1)
R25
REC FM LEVEL
(S-MODE CH-2)
R103
CCD BIAS
R110
YNR NC BAL
R903
EE LEVEL (S-MODE)
VIDEO MAIN PWB
PB10126 -01-02
PB10126 B1 VIDEO MAIN PWB ASS'Y
VIDEO OUT 2
AUDIO OUT 2 (L)
AUDIO OUT 2 (R)
VIDEO OUT 1
AUDIO OUT 1 (L)
AUDIO OUT 1 (R)
VIDEO
LINE IN AUDIO (L)
AUDIO (R)
A
B
C
D
E
F
G
H
1
2
3
4
5
6

– MAIN SUB –

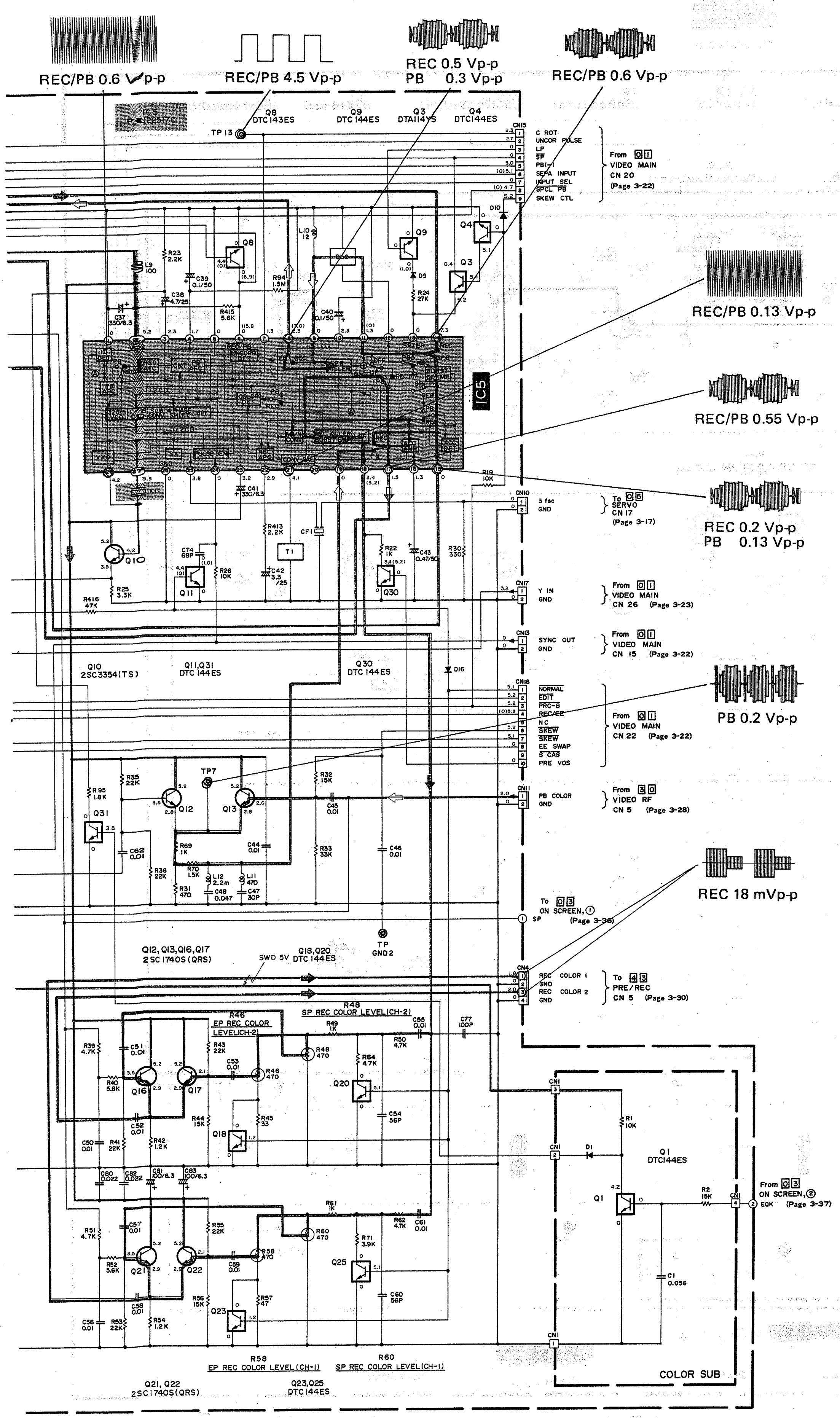


EQ403
PB10126 A2-02
MAIN SUB PWB ASS'Y

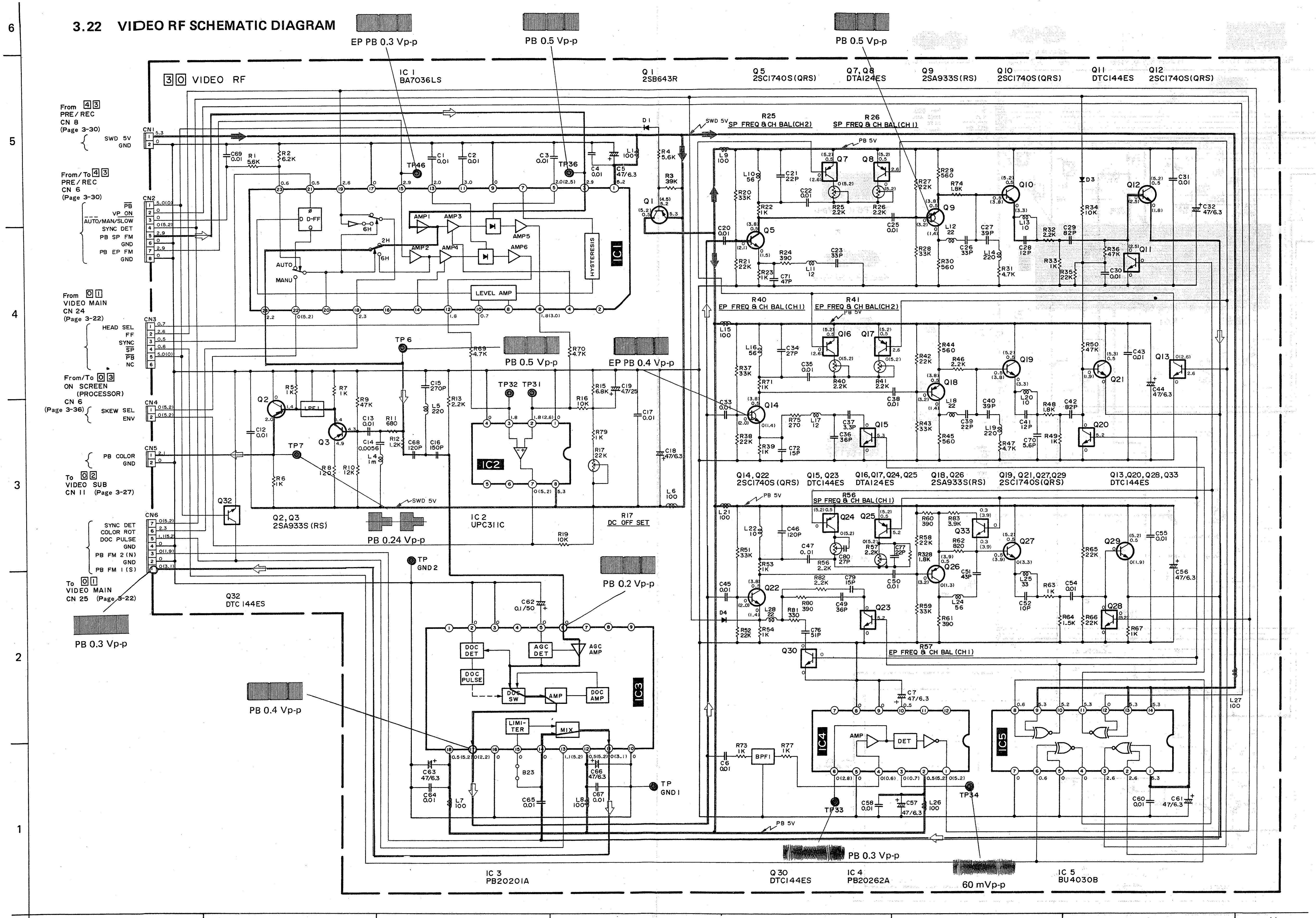
3.21 VIDEO SUB SCHEMATIC DIAGAM



REC/PB 0.6 Vp-p
REC/PB 2.2 Vp-p
REC 0.18 Vp-p
PB 60 mVp-p
REC 9 Vp-p
PB 6 Vp-p
REC/PB 0.6 Vp-p
REC 0.55 Vp-p
PB 0.3 Vp-p
REC/PB 0.6 Vp-p
02 VIDEO SUB
Q201,Q202,Q203 2SC1740S(QRS)
IC1 NJM2234D
IC2 NJM2233AD
IC305 NJM2233AD
IC3 LA7220
Q5 DTA124ES
From 16 RCA/JACK CN 18 (Page 3-48)
C IN 2 GND
From 21 REAR S CN 2 (Page 3-50)
C IN 1 GND
REC/PB 1.0 Vp-p
REC 0.6 Vp-p
From/To 05 ON SCREEN CN 3 (Page 3-37)
TO PRO C GND FROM PRO C GND TO ON SC GND FROM ON SC GND
To 01 VIDEO MAIN CN 14 (Page 3-23)
COLOR EE/PB GND
REC 0.18 Vp-p
PB 0.2 Vp-p
From/To 01 VIDEO MAIN CN 16 (Page 3-22)
Y/C SEP GND Y IN GND
From 25 POWER CN 7 (Page 3-14)
SWD 12V GND SWD 5V GND
REC 1.0 Vp-p
From/To 01 VIDEO MAIN CN 17 (Page 3-22)
TO Y SKEW GND FROM Y SKEW GND
From/To 05 ON SCREEN CN 5 (Page 3-36)
Y GND DC (-) fsc GND FS
REC 0.7 Vp-p
PB 0.7 Vp-p
To 01 VIDEO MAIN CN 18 (Page 3-23)
4 fsc GND
R206 C COMB ADJ 1
IC1
IC2
IC305
REC/EE EE SWAF
IC3
PROCESSOR
REC/EE
Q5
R210 C COMB ADJ 2,3
R414 560
SWD
IC 401 PB20225A
Q401 2SA933S(RS)
IC201 VC2072
R207 C COMB ADJ 1
AMP 1
AMP 2
AMP 3
MIX AMP
PHASE ADJ
OUT AMP
Y/C SEPA IC201
TP205
TP206
TP204
TP203
TP202
R212,R213 Y COMB ADJ
Q204 DTA144WS
TP GND1
Q314
TR401
TP402
TP403
TP405
TP404
ALU
DET
IC401
EQ401
EQ402
EQ403
R412 COLOR EMPHANSER 3
R410 COLOR EMPHANSER 2
R408 COLOR EMPHANSER 1
Q402,Q405 DTC144ES
Q403,Q406 DTA124ES
SWD 5V
SWD 12V
TP201
LPF 302
LPF 301
Q305
Q306
Q307
Q313
Q311
Q310
Q309
Q308
Q305,Q306,Q307,Q313,Q314 2SC1740S(QRS)
Q308,Q309,Q310,Q311 2SC1740S(QRS)
TP207
R310 C COMB ADJ 2,3
R322 Y LEVEL ADJ
R318 E-E/PB DC OFF SET
R13 CNR NC BALANCE
R11 CNR FEEDBACK
R10 CNR INPUT LEVEL
Q28
Q2
Q1
Q1,Q2,Q28 2SC1740S(QRS)
LIM
IC4 BA7233
REC/PB 50 mVp-p
TP21
TP24
TP25
REC 0.5 Vp-p
PB 0.3 Vp-p
Q14
Q15
Q14 DTC144ES
Q15 DTA124ES
PLL BLOCK IC304
CCD BLOCK IC303
IC304 VC2070
IC303 VC2069
REC/PB
IC302
SPCL PB
IC301
Q312
Q6
Q7
TP26
REC 0.9 Vp-p
PB 0.55 Vp-p
R87 CNR OUTPUT LEVEL
IC302 NJM2233AD
IC301 NJM2233AD
Q312 2SC1740S(QRS)
Q6,Q7 2SC1740S(QRS)
6
5
4
3
2
1
A
B
C
D
E
F
G
H

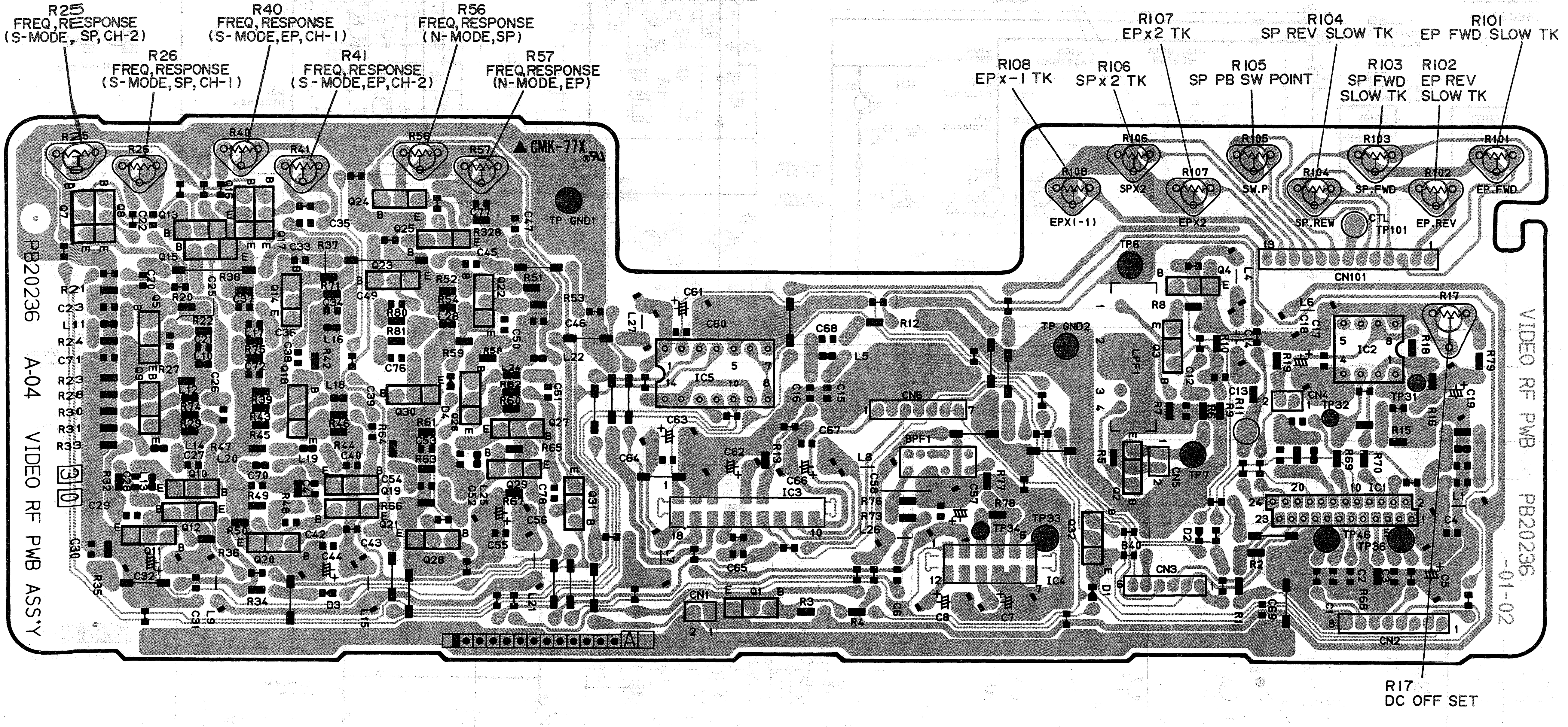

REC/PB 0.6 Vp-p
REC/PB 4.5 Vp-p
REC 0.5 Vp-p
PB 0.3 Vp-p
REC/PB 0.6 Vp-p
IC5
PJ2251
TP13
Q8 DTC143ES
Q9 DTC144ES
Q3 DTA114YS
Q4 DTC144ES
CN15
C ROT
UNCOR PULSE
LP
SP
PB(-)
SEPA INPUT
INPUT SEL
SPCL PB
SKEW CTL
From 01 VIDEO MAIN CN 20 (Page 3-22)
D10
REC/PB 0.13 Vp-p
REC/PB 0.55 Vp-p
REC 0.2 Vp-p
PB 0.13 Vp-p
R19 10K
CN10
3 fsc
GND
To 05 SERVO CN 17 (Page 3-17)
R30 330
CN17
Y IN
GND
From 01 VIDEO MAIN CN 26 (Page 3-23)
CN13
SYNC OUT
GND
From 01 VIDEO MAIN CN 15 (Page 3-22)
D16
CN16
NORMAL
EDIT
PRC-B
REC/EE
NC
SKEW
SKEW
EE SWAP
S CAS
PRE VOS
From 01 VIDEO MAIN CN 22 (Page 3-22)
PB 0.2 Vp-p
CN11
PB COLOR
GND
From 30 VIDEO RF CN 5 (Page 3-28)
REC 18 mVp-p
To 03 ON SCREEN,① SP (Page 3-36)
CN4
REC COLOR 1
GND
REC COLOR 2
GND
To 43 PRE/REC CN 5 (Page 3-30)
Q10 2SC3354(TS)
Q11,Q31 DTC144ES
Q30 DTC144ES
TP7
Q12,Q13,Q16,Q17 2SC1740S(QRS)
Q18,Q20 DTC144ES
SWD 5V
TP GND2
R46 EP REC COLOR LEVEL(CH-2)
R48 SP REC COLOR LEVEL(CH-2)
C77 100P
CN1
R1 10K
D1
Q1 DTC144ES
R2 15K
From 03 ON SCREEN,② EQK (Page 3-37)
C1 0.056
R58 EP REC COLOR LEVEL(CH-1)
R60 SP REC COLOR LEVEL(CH-1)
Q21,Q22 2SC1740S(QRS)
Q23,Q25 DTC144ES
COLOR SUB

3.22 VIDEO RF SCHEMATIC DIAGRAM



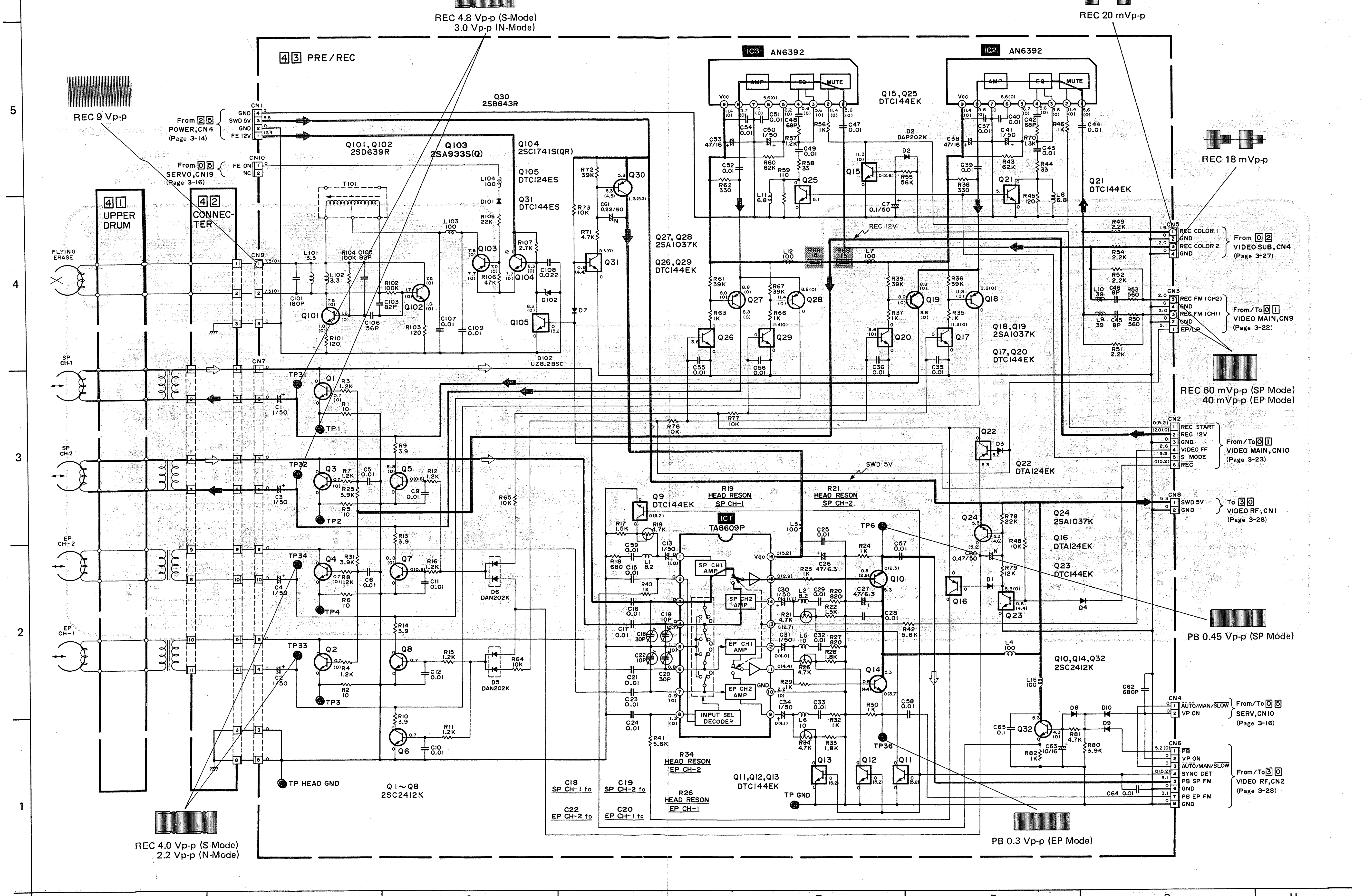
EP PB 0.3 Vp-p
PB 0.5 Vp-p
PB 0.5 Vp-p
30 VIDEO RF
IC 1 BA7036LS
Q 1 2SB643R
Q 5 2SC1740S(QRS)
Q7, Q8 DTA124ES
Q 9 2SA933S(RS)
Q 10 2SC1740S(QRS)
Q 11 DTC144ES
Q 12 2SC1740S(QRS)
From 43 PRE / REC CN 8 (Page 3-30)
SWD 5V
GND
From / To 43 PRE / REC CN 6 (Page 3-30)
PB
VP_ON
AUTO/MAN/SLOW
SYNC DET
PB SP FM
GND
PB EP FM
GND
From 01 VIDEO MAIN CN 24 (Page 3-22)
HEAD SEL
FF
SYNC
SP
PB
NC
From/To 03 ON SCREEN (PROCESSOR) CN 6 (Page 3-36)
SKEW SEL
ENV
PB COLOR
GND
To 02 VIDEO SUB CN 11 (Page 3-27)
SYNC DET
COLOR ROT
DOC PULSE
GND
PB FM 2 (N)
GND
PB FM 1 (S)
To 01 VIDEO MAIN CN 25 (Page 3-22)
CN1
CN2
CN3
CN4
CN5
CN6
TP46
TP36
AMP1
AMP3
AMP5
AMP2
AMP4
AMP6
D D-FF
6H
2H
AUTO
MANU
HYSTERESIS
LEVEL AMP
IC1
SWD 5V
SP FREQ & CH BAL(CH2)
SP FREQ & CH BAL(CH1)
R25
R26
PB 5V
D3
TP 6
PB 0.5 Vp-p
EP PB 0.4 Vp-p
TP32
TP31
IC2
LPF1
TP7
Q2
Q3
Q32
Q2, Q3 2SA933S(RS)
PB 0.24 Vp-p
IC 2 UPC311C
R17 DC OFF SET
EP FREQ & CH BAL(CH1)
EP FREQ & CH BAL(CH2)
R40
R41
Q14, Q22 2SC1740S(QRS)
Q15, Q23 DTC144ES
Q16, Q17, Q24, Q25 DTA124ES
Q18, Q26 2SA933S(RS)
Q19, Q21, Q27, Q29 2SC1740S(QRS)
Q13, Q20, Q28, Q33 DTC144ES
SP FREQ & CH BAL(CH1)
R56
EP FREQ & CH BAL(CH1)
R57
TP GND 2
PB 0.2 Vp-p
Q32 DTC144ES
PB 0.3 Vp-p
DOC DET
AGC DET
AGC AMP
DOC PULSE
DOC SW
AMP
DOC AMP
LIMI-TER
MIX
IC3
PB 0.4 Vp-p
TP GND1
BPF1
AMP
DET
IC4
IC5
TP33
TP34
PB 0.3 Vp-p
60 mVp-p
IC 3 PB20201A
Q 30 DTC144ES
IC 4 PB20262A
IC 5 BU4030B

3.23 VIDEO RF CIRCUIT BOARD

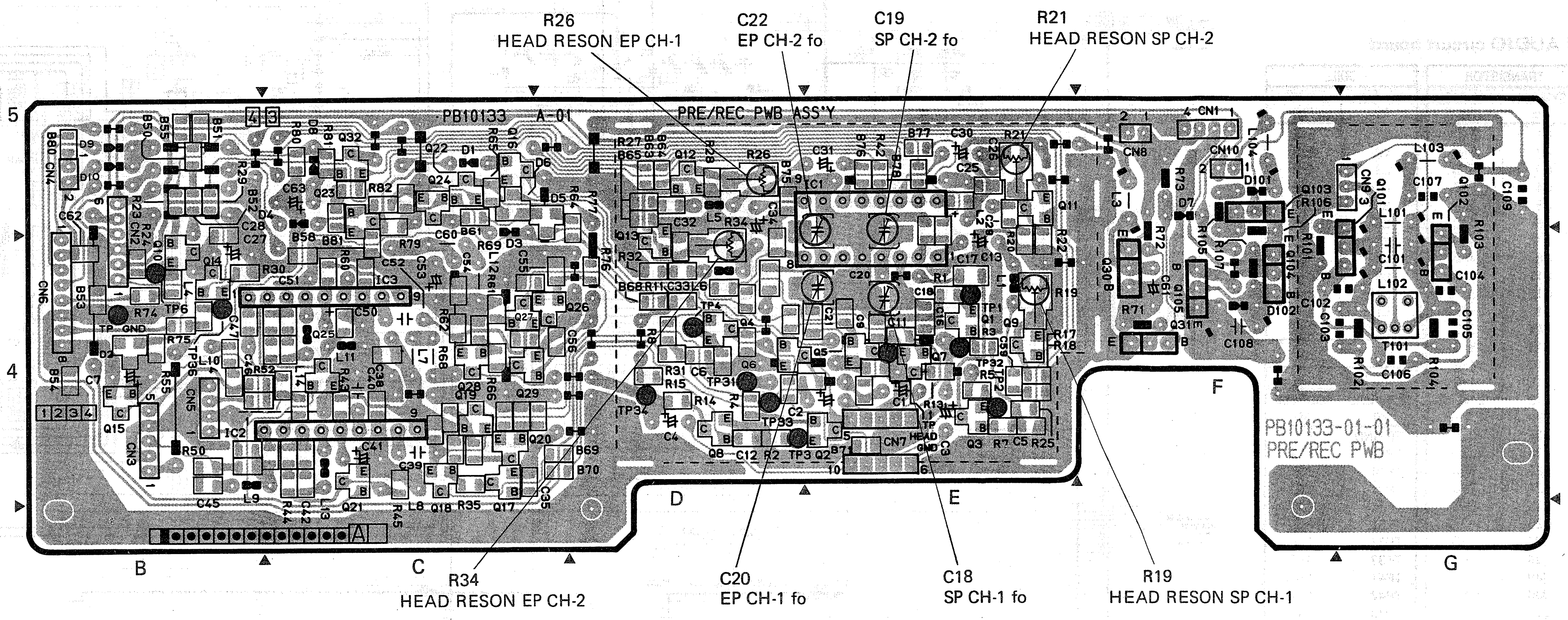

R25
FREQ,RESPONSE
(S-MODE, SP, CH-2)
R26
FREQ,RESPONSE
(S-MODE, SP, CH-1)
R40
FREQ, RESPONSE
(S-MODE, EP, CH-1)
R41
FREQ, RESPONSE
(S-MODE, EP, CH-2)
R56
FREQ, RESPONSE
(N-MODE, SP)
R57
FREQ, RESPONSE
(N-MODE, EP)
R108
EP x-1 TK
R106
SP x 2 TK
R107
EP x 2 TK
R105
SP PB SW POINT
R104
SP REV SLOW TK
R103
SP FWD
SLOW TK
R102
EP REV
SLOW TK
R101
EP FWD SLOW TK
R17
DC OFF SET
CMK-77X
TP GND1
TP GND2
PB20236
A-04
VIDEO RF PWB ASS'Y
VIDEO RF PWB
PB20236
-01-02
EPX(-1)
SPX2
EPX2
SW.P
SP.REV
SP.FWD
EP.REV
EP.FWD
CN101
IC1
IC2
IC3
IC4
IC5
CN1
CN2
CN3
CN4
CN5
CN6
LPF1
BPF1

6
5
4
3
2
1
A
B
C
D
E
F
G
H

3.24 PRE/REC SCHEMATIC DIAGRAM


REC 4.8 Vp-p (S-Mode)
3.0 Vp-p (N-Mode)
REC 20 mVp-p
REC 9 Vp-p
REC 18 mVp-p
REC 60 mVp-p (SP Mode)
40 mVp-p (EP Mode)
PB 0.45 Vp-p (SP Mode)
PB 0.3 Vp-p (EP Mode)
REC 4.0 Vp-p (S-Mode)
2.2 Vp-p (N-Mode)
43 PRE / REC
41 UPPER DRUM
42 CONNECTER
FLYING ERASE
SP CH-1
SP CH-2
EP CH-2
EP CH-1
From 25 POWER,CN4 (Page 3-14)
From 05 SERVO,CN19 (Page 3-16)
From 02 VIDEO SUB,CN4 (Page 3-27)
From/To 01 VIDEO MAIN,CN9 (Page 3-22)
From/To 01 VIDEO MAIN,CN10 (Page 3-23)
To 30 VIDEO RF,CN1 (Page 3-28)
From/To 05 SERV,CN10 (Page 3-16)
From/To 30 VIDEO RF,CN2 (Page 3-28)
IC3 AN6392
IC2 AN6392
IC1 TA8609P
Q30 2SB643R
Q101,Q102 2SD639R
Q103 2SA933S(Q)
Q104 2SC1741S(QR)
Q105 DTC124ES
Q31 DTC144ES
Q15,Q25 DTC144EK
Q21 DTC144EK
Q27,Q28 2SA1037K
Q26,Q29 DTC144EK
Q18,Q19 2SA1037K
Q17,Q20 DTC144EK
Q22 DTA124EK
Q9 DTC144EK
Q24 2SA1037K
Q16 DTA124EK
Q23 DTC144EK
Q10,Q14,Q32 2SC2412K
Q11,Q12,Q13 DTC144EK
Q1~Q8 2SC2412K
D2 DAP202K
D102 UZ8.2BSC
D5 DAN202K
D6 DAN202K
R19 HEAD RESON SP CH-1
R21 HEAD RESON SP CH-2
R34 HEAD RESON EP CH-2
R26 HEAD RESON EP CH-1
C18 SP CH-1 fo
C19 SP CH-2 fo
C22 EP CH-2 fo
C20 EP CH-1 fo
SP CH1 AMP
SP CH2 AMP
EP CH1 AMP
EP CH2 AMP
INPUT SEL DECODER
AMP
EQ
MUTE
REC 12V
SWD 5V
TP1
TP2
TP3
TP4
TP6
TP31
TP32
TP33
TP34
TP36
TP HEAD GND
TP GND
CN1 GND SWD 5V GND FE 12V
CN10 FE ON NC
CN5 REC COLOR 1 GND REC COLOR 2 GND
CN3 REC FM (CH2) GND REC FM (CH1) GND EP/LP
CN2 REC START REC 12V GND VIDEO FF S MODE REC
CN8 SWD 5V GND
CN4 AUTO/MAN/SLOW VP ON
CN6 PB VP ON AUTO/MAN/SLOW SYNC DET PB SP FM GND PB EP FM GND
1
2
3
4
5
6
A
B
C
D
E
F
G
H

3.25 PRE/REC CURCUIT BOARD


R26
HEAD RESON EP CH-1
C22
EP CH-2 fo
C19
SP CH-2 fo
R21
HEAD RESON SP CH-2
PB10133 A-01
PRE/REC PWB ASS'Y
PB10133-01-01
PRE/REC PWB
5
4
B
C
D
E
F
G
R34
HEAD RESON EP CH-2
C20
EP CH-1 fo
C18
SP CH-1 fo
R19
HEAD RESON SP CH-1

• Address teble of PRE/REC circuit board

IC	
SYMBOL No.	ADDRESS No.
IC1	5-E
IC2	4-C
IC3	4-C

TRANSISTOR	
SYMBOL No.	ADDRESS No.
Q1	4-E
Q2	4-E
Q3	4-E
Q4	4-D
Q5	4-E
Q6	4-D
Q7	4-E
Q8	4-D
Q9	4-E
Q10	4-B
Q11	5-E
Q12	5-D
Q13	4-D
Q14	4-B
Q15	4-B
Q16	5-C
Q17	4-C
Q18	4-C
Q19	4-C
Q20	4-C
Q21	4-C
Q22	5-C

TRANSISTOR	
SYMBOL No.	ADDRESS No.
Q23	5-C
Q24	5-C
Q25	4-C
Q26	4-D
Q27	4-C
Q28	4-C
Q29	4-C
Q30	4-F
Q31	4-F
Q32	5-C
Q101	4-F, G
Q102	4-G
Q103	5-F
Q104	4-F
Q105	4-F

DIODE	
SYMBOL No.	ADDRESS No.
D1	5-C
D2	4-B
D3	5-C
D4	5-C
D5	5-D
D6	5-C
D7	5-F
D8	5-C
D9	5-B
D10	5-B
D101	5-F
D102	4-F

COIL	
SYMBOL No.	ADDRESS No.
L1	4-E
L2	5-E
L3	5-F
L4	4-B
L5	5-D
L6	4-D
L7	4-C
L8	4-C
L9	4-B
L10	4-B
L11	4-C
L12	4-C
L15	5-C
L101	5-G
L102	4-G
L103	5-G
L104	5-F

TEST PIN	
SYMBOL No.	ADDRESS No.
TP GND	4-B
HEAD GND	4-E
TP1	4-E
TP2	4-F
TP3	4-D
TP4	4-D
TP6	4-B
TP31	4-D
TP32	4-E
TP33	4-D
TP34	4-D
TP36	4-B

CONNECTOR	
SYMBOL No.	ADDRESS No.
CN1	5-F
CN2	4, 5-B
CN3	4-B
CN4	5-B
CN5	4-B
CN6	4-B
CN7	4-E
CN8	5-F
CN10	5-F

3.26 AUDIO SCHEMATIC DIAGRAM

• Address teble of AUDIO circuit board

IC SYMBOL No.	IC ADDRESS No.
IC1	5-F
IC2	5-E
IC3	5-A, B, C
IC4	4-C
IC5	4-A, B
IC6	3-E
IC7	4-E, F
IC8	3, 4-D
IC9	4-E
IC10	2, 3-A
IC11	2-B
IC12	2-C
IC13	2-E, F
IC14	2-D
IC15	3-E
IC16	5-G
IC18	3-G

DIODE SYMBOL No.	DIODE ADDRESS No.
D1	5-D
D2	3-B
D3	5-D
D4	5-D
D5	5-D
D6	3-B
D7	4-C
D8	3-C
D9	4-C
D10	3-C
D11	4-E
D12	4-E
D13	4-A
D14	4-C
D15	4-C
D16	5-D
D17	4-F
D19	4-E
D20	4-F
D21	3-G
D22	3-F
D23	3-F
D24	3-F
D25	5-D
D26	3-E, F
D27	4-B
D28	4, 5-F
D29	4, 5-F
D30	3-E

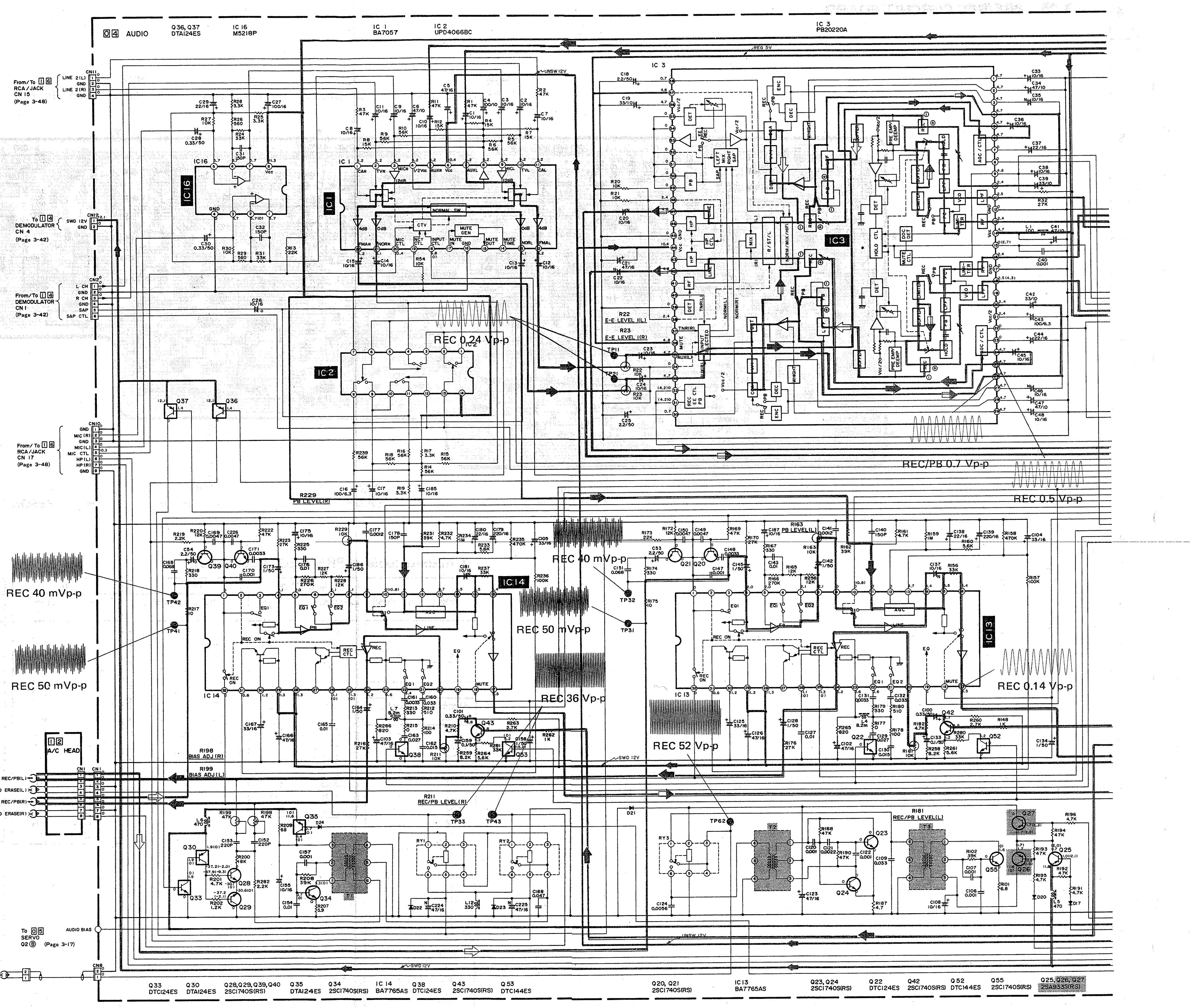
TRANSISTOR SYMBOL No.	TRANSISTOR ADDRESS No.
Q1	5-D
Q2	5-D
Q3	5-D
Q4	5-D
Q5	5-D
Q6	4-C
Q7	4-C
Q8	4-E
Q11	4-B
Q12	3, 4-B
Q13	3-A, B
Q14	3-B
Q16	5-G
Q17	4-G
Q18	4-G
Q19	2-A, B
Q20	1, 2-F
Q21	2-F
Q22	2, 3-E
Q23	3-G
Q24	3-G
Q25	3-G
Q26	3-F, G
Q27	3-G
Q28	2-F, G
Q29	2-F, G
Q30	2-F, G
Q31	2-G
Q32	2-G
Q33	2-F
Q34	3-F
Q35	3-F
Q36	2-F, G
Q37	2-G
Q38	2, 3-C
Q39	1-D, E
Q40	2-D, E
Q41	3-D
Q42	2-E
Q43	2-C
Q44	5-B
Q47	3-B
Q50	4-B
Q51	4-B
Q52	2-E
Q53	1-C
Q54	4-G
Q55	3, 4-F
Q56	4-B

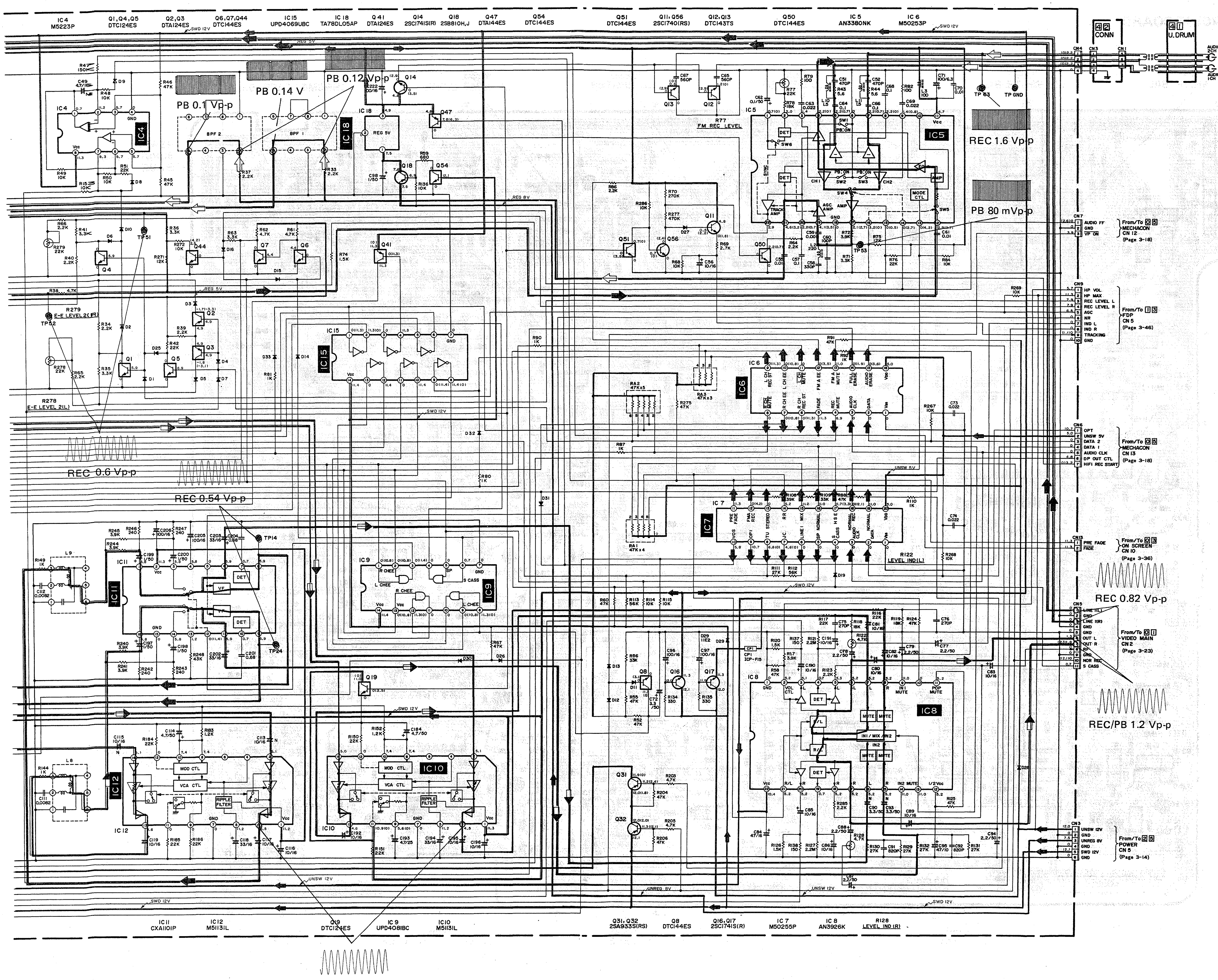
COIL SYMBOL No.	COIL ADDRESS No.
L1	5-B
L2	4-B
L3	4-B
L4	2-E
L5	3-G
L6	2-G
L7	2-C
L8	2-B, C
L9	1, 2-B, C
L10	3-B
L11	3-A
L12	3-F

TEST PIN SYMBOL No.	TEST PIN ADDRESS No.
TP GND	1-F
TP11	4-B
TP14	2-C
TP21	4-C
TP24	3-C
TP31	1-F
TP32	1-F
TP33	3-F
TP41	1-E
TP42	1-E
TP43	2, 3-F
TP51	5-B
TP52	5-C
TP53	1-C
TP62	3-G
TP63	1-C

CONNECTOR SYMBOL No.	CONNECTOR ADDRESS No.
CN1	2-F, G
CN2	5-E
CN3	5-G
CN4	3-B
CN5	4-D
CN6	4, 5-F
CN7	4-A
CN8	3-G
CN9	3-A, B
CN10	5-G
CN11	5-E
CN12	5-G
CN13	4-C
CN14	5-E

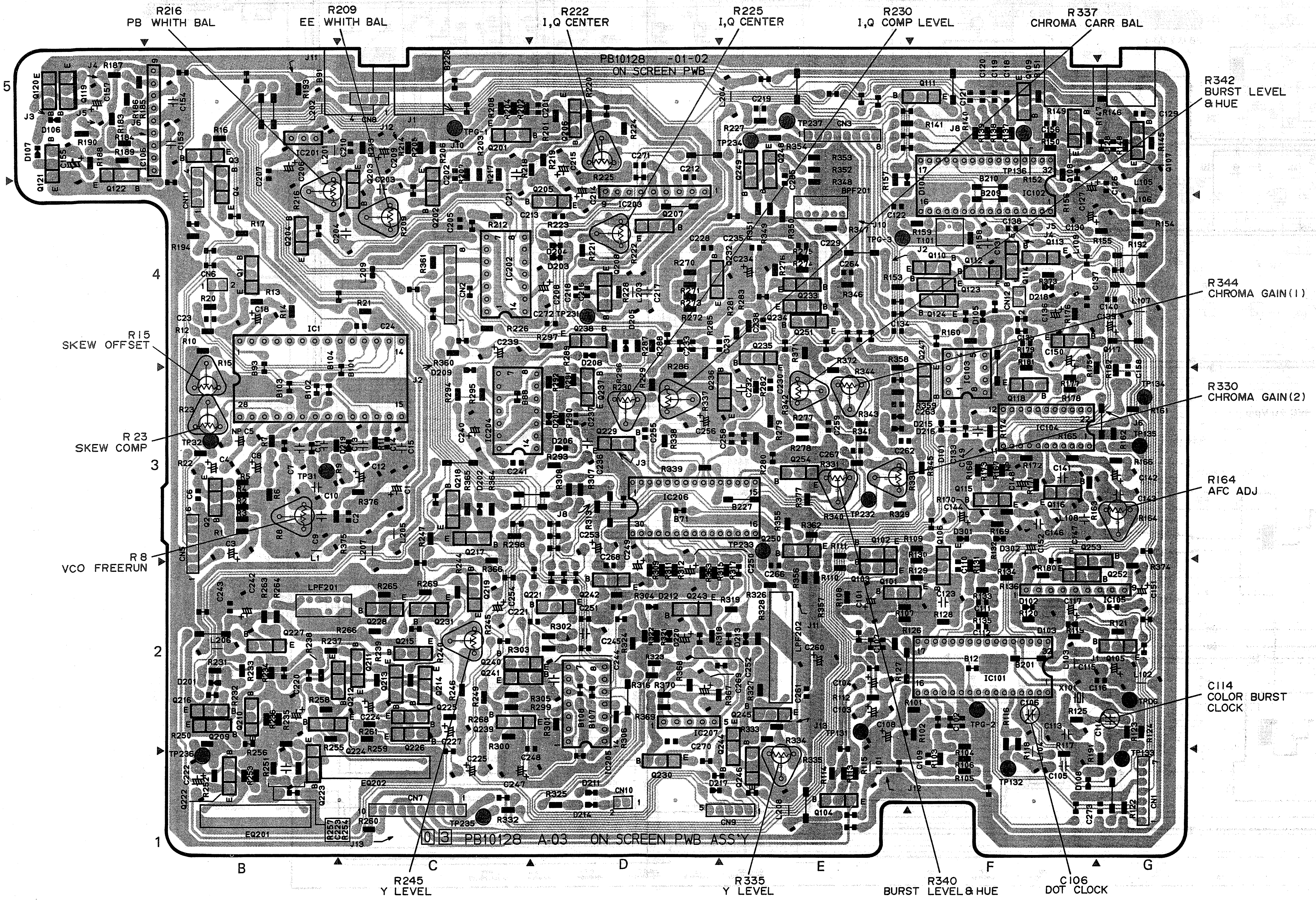
CIRCUIT PROTECTOR SYMBOL No.	CIRCUIT PROTECTOR ADDRESS No.
CP1	5-F


04 AUDIO
Q36, Q37 DTA124ES
IC16 M5218P
IC1 BA7057
IC2 UPD4066BC
IC3 PB20220A
From/To 16 RCA/JACK CN15 (Page 3-48)
LINE 2(L)
GND
LINE 2(R)
GND
CN11
To 14 DEMODULATOR CN4 (Page 3-42)
SWD 12V
GND
CN12
From/To 14 DEMODULATOR CN1 (Page 3-42)
L CH
GND
R CH
GND
SAP
SAP CTL
CN2
From/To 16 RCA/JACK CN17 (Page 3-48)
GND
MIC(R)
GND
MIC(L)
MIC CTL
HP(L)
HP(R)
GND
CN10
12 A/C HEAD
REC/PB(L)
AUDIO ERASE(L)
REC/PB(R)
AUDIO ERASE(R)
CN1
To 05 SERVO Q2 8 (Page 3-17)
AUDIO BIAS
FULL ERASE
CN8
REG 5V
UNSW 12V
SWD 12V
IC16
IC1
IC2
IC3
IC14
IC13
REC 0.24 Vp-p
REC/PB 0.7 Vp-p
REC 0.5 Vp-p
REC 40 mVp-p
REC 50 mVp-p
REC 40 mVp-p
REC 50 mVp-p
REC 36 Vp-p
REC 52 Vp-p
REC 0.14 Vp-p
R229 PB LEVEL(R)
R163 PB LEVEL(L)
R198 BIAS ADJ (R)
R199 BIAS ADJ (L)
R211 REC/PB LEVEL(R)
R181 REC/PB LEVEL(L)
R22 E-E LEVEL (L)
R23 E-E LEVEL (R)
TP11
TP21
TP31
TP32
TP33
TP41
TP42
TP43
TP62
Q33 DTC124ES
Q30 DTA124ES
Q26, Q29, Q39, Q40 2SC1740S(RS)
Q35 DTA124ES
Q34 2SC1740S(RS)
IC14 BA7765AS
Q38 DTC124ES
Q43 2SC1740S(RS)
Q53 DTC144ES
Q20, Q21 2SC1740S(RS)
IC13 BA7765AS
Q23, Q24 2SC1740S(RS)
Q22 DTC124ES
Q42 2SC1740S(RS)
Q52 DTC144ES
Q55 2SC1740S(RS)
Q25, Q26, Q27 2SA933S(RS)
6
5
4
3
2
1
A
B
C
E
F
G
H


IC4 M5223P
Q1,Q4,Q5 DTC124ES
Q2,Q3 DTA124ES
Q6,Q7,Q44 DTC144ES
IC15 UPD4069UBC
IC18 TA78DL05AP
Q41 DTA124ES
Q14 2SC1741S(R)
Q18 2SB810H,J
Q47 DTA144ES
Q54 DTC144ES
Q51 DTC144ES
Q11,Q56 2SC1740(RS)
Q12,Q13 DTC143TS
Q50 DTC144ES
IC5 AN3380NK
IC6 M50253P
SWD 12V
REG 5V
PB 0.1 Vp-p
PB 0.14 V
PB 0.12 Vp-p
REC 1.6 Vp-p
PB 80 mVp-p
R77 FM REC LEVEL
TP53
TP GND
TP51
TP52
TP14
TP24
REG 8V
E-E LEVEL 2(R)
E-E LEVEL 2(L)
REC 0.6 Vp-p
REC 0.54 Vp-p
LEVEL IND(L)
4 2 CONN
4 1 U.DRUM
CN4
CN3
CN1
AUDIO 2CH
AUDIO 1CH
CN7
AUDIO FF
GND
VP ON
From/To 0 5 MECHACON CN 12 (Page 3-18)
CN9
HP VOL
HP MAX
REC LEVEL L
REC LEVEL R
AGC
NR
IND L
IND R
TRACKING
GND
From/To 1 3 FDP CN 5 (Page 3-46)
CN6
OPT
UNSW 5V
DATA 2
DATA 1
AUDIO CLK
DP OUT CTL
HIFI REC START
From/To 0 5 MECHACON CN 13 (Page 3-18)
CN13
PRE FADE
FADE
From/To 0 3 ON SCREEN CN 10 (Page 3-36)
REC 0.82 Vp-p
CN5
LINE 1(L)
GND
LINE 1(R)
GND
GND
OUT L
OUT R
RF
GND
NOR REC
S CASS
From/To 0 1 VIDEO MAIN CN 2 (Page 3-23)
REC/PB 1.2 Vp-p
CN3
UNSW 12V
GND
UNREG 8V
GND
SWD 12V
GND
From/To 2 5 POWER CN 5 (Page 3-14)
UNSW 12V
UNREG 8V
IC11 CXA1101P
IC12 M5113IL
Q19 DTC124ES
IC9 UPD4081BC
IC10 M5113IL
Q31,Q32 2SA933S(RS)
Q8 DTC144ES
Q16,Q17 2SC1741S(R)
IC7 M50255P
IC8 AN3926K
R128 LEVEL IND (R)
REC 1.4 Vp-p

I	J	K	L	M	N	O	P

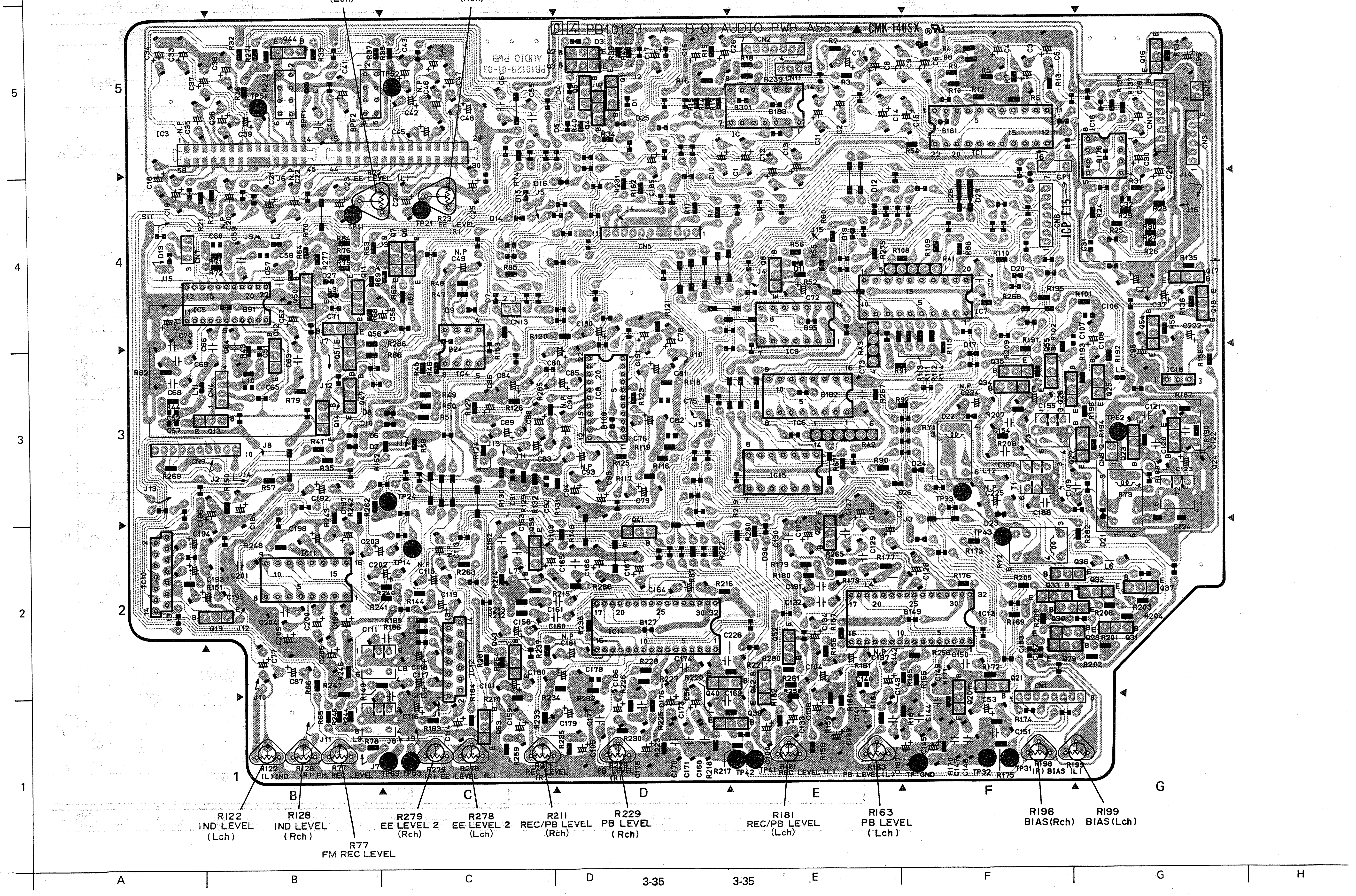
3.27 ON SCREEN CIRCUIT BOARD


R216
PB WHITH BAL
R209
EE WHITH BAL
R222
I,Q CENTER
R225
I,Q CENTER
R230
I,Q COMP LEVEL
R337
CHROMA CARR BAL
R342
BURST LEVEL & HUE
R344
CHROMA GAIN(1)
R330
CHROMA GAIN(2)
R164
AFC ADJ
C114
COLOR BURST CLOCK
R15
SKEW OFFSET
R 23
SKEW COMP
R 8
VCO FREERUN
R245
Y LEVEL
R335
Y LEVEL
R340
BURST LEVEL & HUE
C106
DOT CLOCK
PB10128 -01-02
ON SCREEN PWB
0 3 PB10128 A-03 ON SCREEN PWB ASS'Y
1
2
3
4
5
B
C
D
E
F
G

3.28 AUDIO CIRCUIT BOARD

R22
EE LEVEL I
(Lch)

R23
EE LEVEL I
(Rch)


04 PB10129 A B-01 AUDIO PWB ASS'Y CMK-140SX
PB10129-01-03 AUDIO PWB
IC1
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
CN1
CN5
TP11
TP14
TP21
TP24
TP31
TP32
TP33
TP41
TP42
TP43
TP51
TP52
TP53
TP62
TP63
TP GND
1
2
3
4
5
6
A
B
C
D
E
F
G
H

R122
IND LEVEL
(Lch)

R128
IND LEVEL
(Rch)

R77
FM REC LEVEL

R279
EE LEVEL 2
(Rch)

R278
EE LEVEL 2
(Lch)

R211
REC/PB LEVEL
(Rch)

R229
PB LEVEL
(Rch)

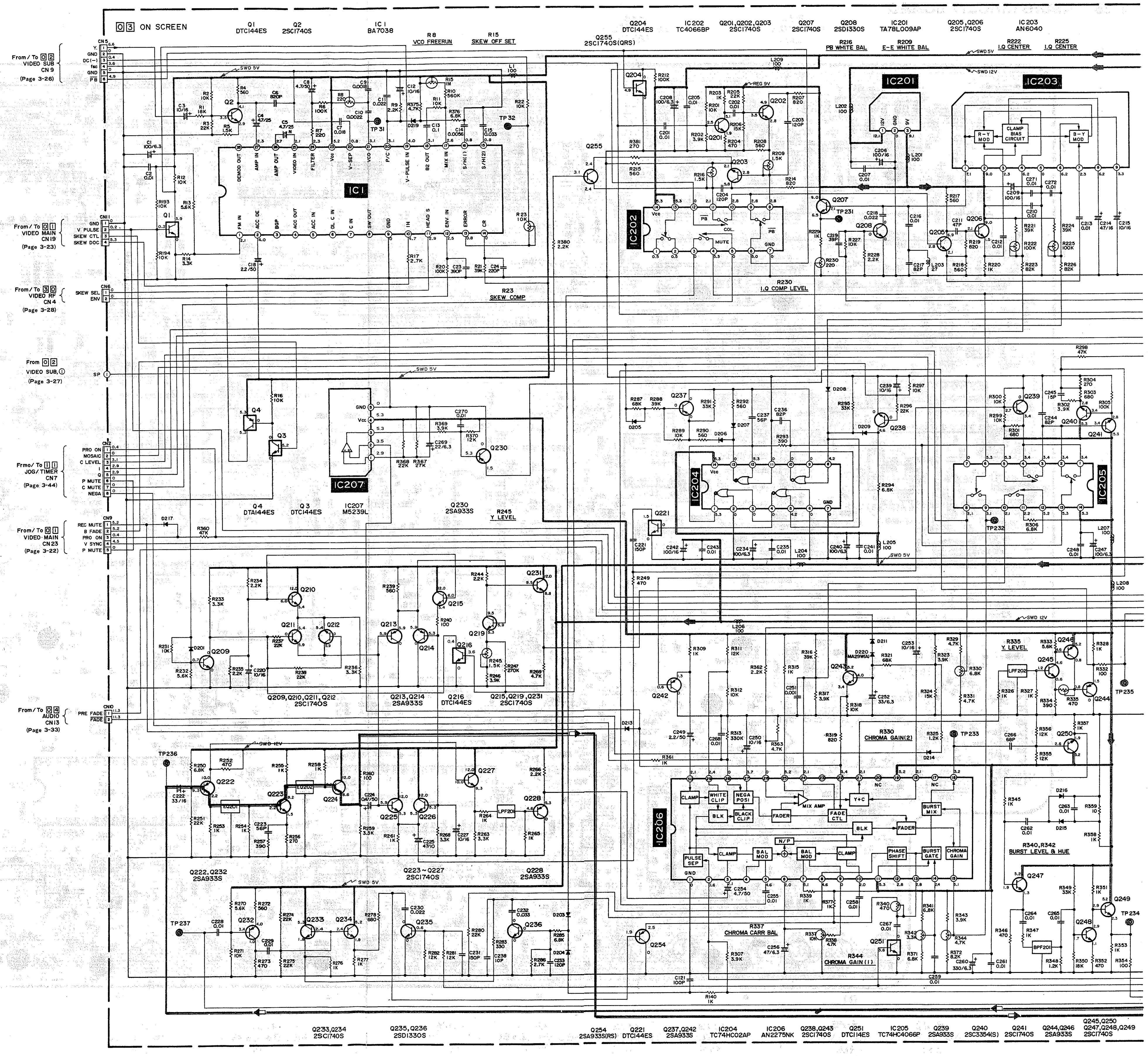
R181
REC/PB LEVEL
(Lch)

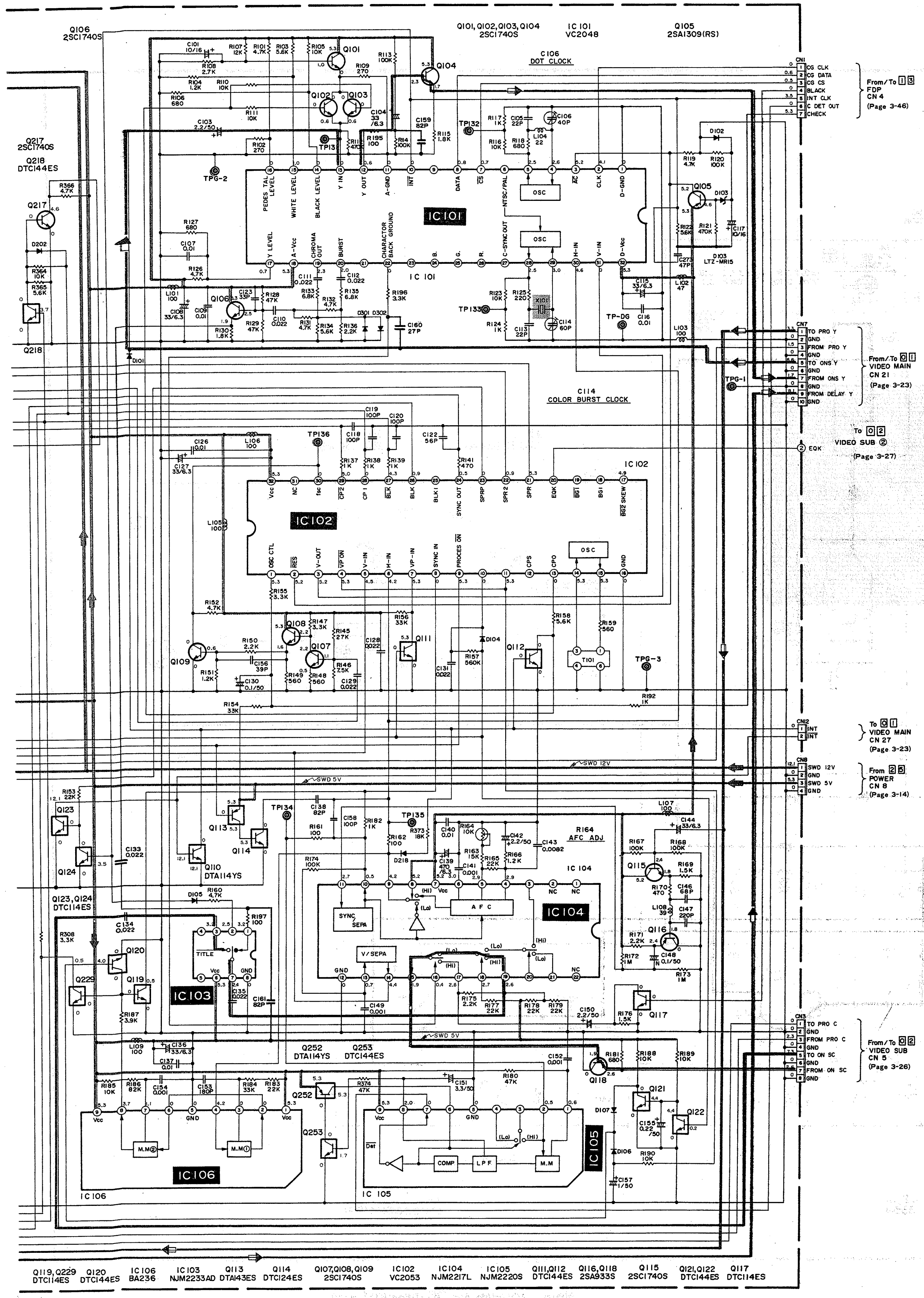
R163
PB LEVEL
(Lch)

R198
BIAS(Rch)

R199
BIAS(Lch)

3.29 ON SC REEN SCHEMATIC DIAGRAM


03 ON SCREEN
Q1 DTC144ES
Q2 2SC1740S
IC1 BA7038
R8 VCO FREERUN
R15 SKEW OFF SET
Q255 2SC1740S(QRS)
Q204 DTC144ES
IC202 TC4066BP
Q201,Q202,Q203 2SC1740S
Q207 2SC1740S
Q208 2SD1330S
IC201 TA78L009AP
Q205,Q206 2SC1740S
IC203 AN6040
R216 PB WHITE BAL
R209 E-E WHITE BAL
R222 I.Q CENTER
R225 I.Q CENTER
From/To 02 VIDEO SUB CN9 (Page 3-26)
From/To 01 VIDEO MAIN CN19 (Page 3-23)
From/To 30 VIDEO RF CN4 (Page 3-28)
From 02 VIDEO SUB,① (Page 3-27)
Frmo/To 11 JOG/TIMER CN7 (Page 3-44)
From/To 01 VIDEO-MAIN CN23 (Page 3-22)
From/To 04 AUDIO CN13 (Page 3-33)
IC1
IC201
IC203
IC202
IC204
IC205
IC206
IC207
R23 SKEW COMP
R230 I.Q COMP LEVEL
Q4 DTA144ES
Q3 DTC144ES
IC207 M5239L
Q230 2SA933S
R245 Y LEVEL
Q209,Q210,Q211,Q212 2SC1740S
Q213,Q214 2SA933S
Q216 DTC144ES
Q215,Q219,Q231 2SC1740S
R335 Y LEVEL
R330 CHROMA GAIN(2)
R340,R342 BURST LEVEL & HUE
R337 CHROMA CARR BAL
R344 CHROMA GAIN (1)
Q222,Q232 2SA933S
Q223~Q227 2SC1740S
Q228 2SA933S
Q233,Q234 2SC1740S
Q235,Q236 2SD1330S
Q254 2SA933S(RS)
Q221 DTC144ES
Q237,Q242 2SA933S
IC204 TC74HC02AP
IC206 AN2275NK
Q238,Q243 2SC1740S
Q251 DTC114ES
IC205 TC74HC4066P
Q239 2SA933S
Q240 2SC3354(S)
Q241 2SC1740S
Q244,Q246 2SA933S
Q245,Q250 Q247,Q248,Q249 2SC1740S
TP31
TP32
TP231
TP232
TP233
TP234
TP235
TP236
TP237
SWD 5V
SWD 12V
REG 9V
6
5
4
3
2
1
A
B
C
D
E
F
G
H


Q106 2SC1740S
Q101,Q102,Q103,Q104 2SC1740S
IC101 VC2048
Q105 2SA1309(RS)
C106 DOT CLOCK
Q217 2SC1740S
Q218 DTC144ES
IC101
IC102
C114 COLOR BURST CLOCK
IC103
IC104
IC105
IC106
AFC ADJ
From/To FDP CN4 (Page 3-46)
From/To VIDEO MAIN CN21 (Page 3-23)
To VIDEO SUB ② (Page 3-27)
To VIDEO MAIN CN27 (Page 3-23)
From POWER CN8 (Page 3-14)
From/To VIDEO SUB CN5 (Page 3-26)
Q123,Q124 DTC114ES
Q252 DTA114YS
Q253 DTC144ES
Q110 DTA114YS
Q119,Q229 DTC114ES
Q120 DTC144ES
IC106 BA236
IC103 NJM2233AD
Q113 DTA143ES
Q114 DTC124ES
Q107,Q108,Q109 2SC1740S
IC102 VC2053
IC104 NJM2217L
IC105 NJM2220S
Q111,Q112 DTC144ES
Q116,Q118 2SA933S
Q115 2SC1740S
Q121,Q122 DTC144ES
Q117 DTC114ES

Note: Voltages are DC-measured with a digital voltemeter during on screen mode.

• Address teble of ON SCREEN circuit board

IC	
SYMBOL No.	ADDRESS No.
IC1	3, 4-B, C
IC101	2-F
IC102	4, 5-F
IC103	3, 4-F
IC104	3-F
IC105	2-F, G
IC106	5-B
IC201	5-B
IC202	4-C
IC203	5-D
IC204	3, 4-C, D
IC205	2-D
IC206	3-D, E
IC207	2-D

DIODE	
SYMBOL No.	ADDRESS No.
D101	3-F
D102	2-F
D103	2-F
D104	5-F
D105	4-F
D106	5-A
D107	5-A
D201	2-B
D202	3-C
D203	4-D
D204	4-D
D205	4-D
D206	3-D
D207	3-D
D208	4-D
D209	4-C
D211	1-D
D213	2-E
D214	1-D
D215	3-E
D216	3-E
D217	1-D, E
D218	4-F
D219	3-C
D220	2-D
D301	3-F
D302	3-F

TRANSISTOR	
SYMBOL No.	ADDRESS No.
Q1	4-B
Q2	3-B
Q3	5-B
Q4	5-B
Q101	2-E, F
Q102	3-E
Q103	3-E
Q104	1-E
Q105	2-G
Q106	3-F
Q107	5-G
Q108	5-F
Q109	5-F
Q110	4-F
Q111	5-F
Q112	4-F
Q113	4-F
Q114	4-F
Q115	3-F
Q116	3-F
Q117	4-F
Q118	4-F
Q119	5-A
Q120	5-A
Q121	5-A
Q122	5-A
Q123	4-F
Q124	4-F
Q201	5-C
Q202	4, 5-C
Q203	4, 5-C
Q204	4-B
Q205	4, 5-D
Q206	5-D
Q207	4-D
Q208	4-D
Q209	2-B
Q210	2-B
Q211	2-C
Q212	2-B, C
Q213	2-C
Q214	2-C
Q215	2-C
Q216	2-B
Q217	3-C
Q218	3-C
Q219	2, 3-C
Q221	2-D
Q222	1, 2-B
Q223	1, 2-B

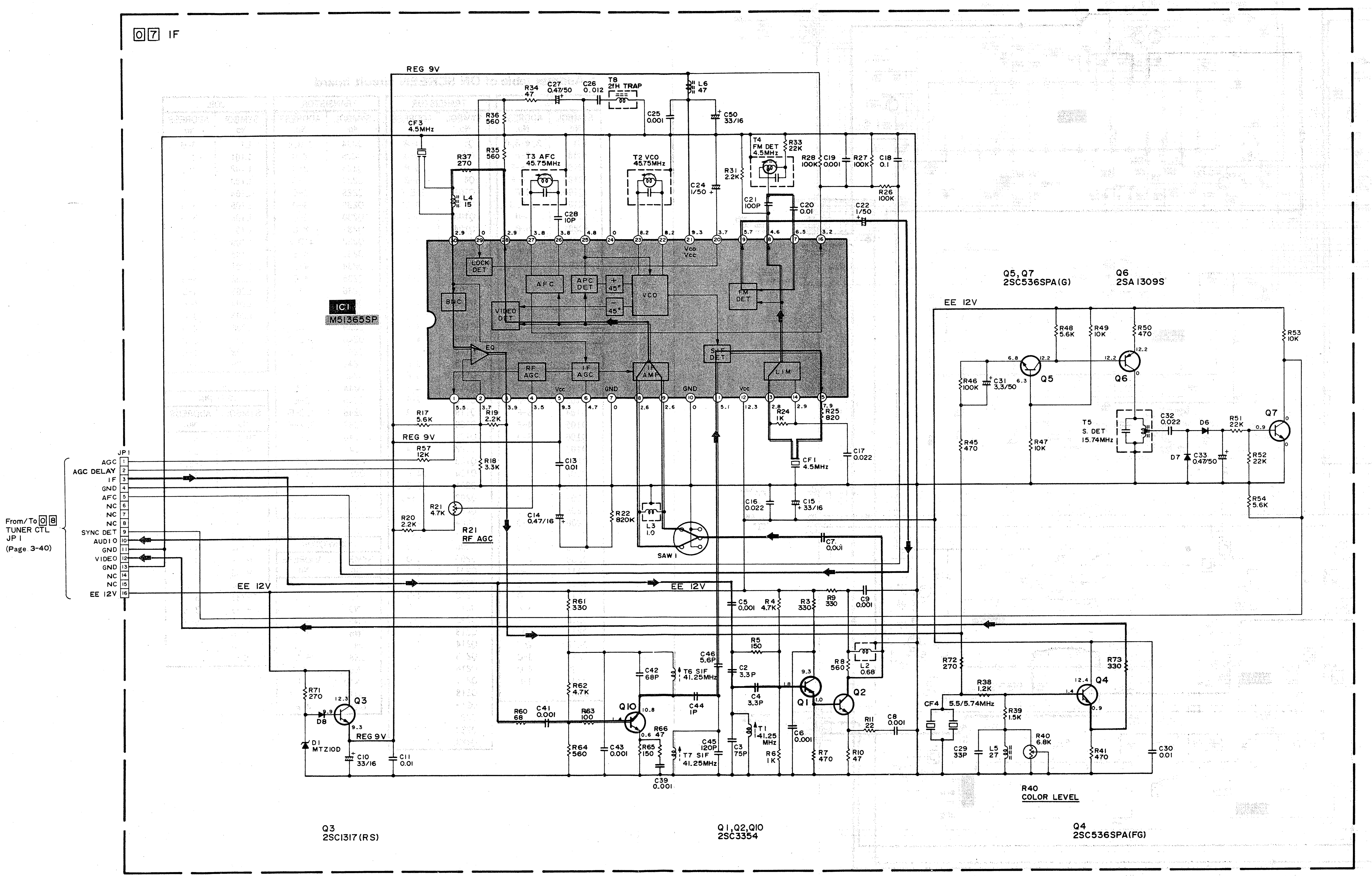
TRANSISTOR	
SYMBOL No.	ADDRESS No.
Q224	2-B, C
Q225	2-C
Q226	2-C
Q227	2-B
Q228	2-C
Q229	3-D
Q230	2-D
Q231	2-C
Q232	4-D, E
Q233	4-E
Q234	4-E
Q235	4-E
Q236	3, 4-E
Q237	3, 4-D
Q238	4-D
Q239	2-C, D
Q240	2-C, D
Q241	2-C, D
Q242	2, 3-D
Q243	2-D
Q244	2-E
Q245	2-E
Q246	1, 2-E
Q247	3, 4-F
Q248	5-E
Q249	5-E
Q250	3-E
Q251	4-E
Q252	3-F, G
Q253	3-F, G
Q254	3-E

CONNECTOR	
SYMBOL No.	ADDRESS No.
CN1	1, 2-G
CN2	4-C
CN3	5-E
CN5	3-B
CN6	4-B
CN7	1-C
CN8	5-C
CN9	1-D, E
CN10	1-D
CN11	4, 5-B
CN12	4-F

COIL	
SYMBOL No.	ADDRESS No.
L1	3-B
L101	2-E
L102	2-G
L103	2-F
L104	2-F
L105	5-G
L106	5-G
L107	4-G
L108	3-F
L109	4-F
L201	5-B
L202	5-B
L203	4-D
L204	5-E
L205	3-C
L206	2-B
L207	3-C
L208	1-E
L209	4-C

TEST PIN	
SYMBOL No.	ADDRESS No.
TP G-1	5-C
TP G-2	2-F
TP G-3	4-E, F
TP DG	2-G
TP31	3-B
TP32	3-B
TP131	2-E
TP132	2-F
TP133	2-G
TP134	3-G
TP135	3-G
TP136	5-F
TP231	4-D
TP232	3-E
TP233	3-E
TP234	5-E
TP235	1-C
TP236	2-B
TP237	5-E

3.30 IF SCHEMATIC DIAGRAM


07 IF
REG 9V
R34 47
C27 0.47/50
C26 0.012
T8 2fH TRAP
L6 47
C25 0.001
C50 33/16
R36 560
CF3 4.5MHz
R35 560
R37 270
T3 AFC 45.75MHz
T2 VCO 45.75MHz
T4 FM DET 4.5MHz
R33 22K
R28 100K
C19 0.001
R27 100K
C18 0.1
R26 100K
R31 2.2K
C24 1/50
C21 100P
C20 0.01
C22 1/50
L4 15
C28 10P
IC1 M51365SP
LOCK DET
AFC
APC DET
+45°
-45°
VCO
Vcc
FM DET
BPC
VIDEO DET
EQ
RF AGC
IF AGC
IF AMP
SIF DET
LIM
GND
R17 5.6K
R19 2.2K
R25 820
R24 1K
REG 9V
R57 12K
R18 3.3K
C13 0.01
CF1 4.5MHz
C17 0.022
R20 2.2K
R21 4.7K
R21 RF AGC
C14 0.47/16
R22 820K
L3 1.0
SAW 1
C16 0.022
C15 33/16
C7 0.001
JP1
AGC
AGC DELAY
IF
GND
AFC
NC
NC
NC
SYNC DET
AUDIO
GND
VIDEO
GND
NC
NC
EE 12V
From/To 08 TUNER CTL JP1 (Page 3-40)
EE 12V
EE 12V
R61 330
C5 0.001
R4 4.7K
R3 330
R9 330
C9 0.001
R5 150
C46 5.6P
C2 3.3P
C42 68P
T6 SIF 41.25MHz
R62 4.7K
R8 560
L2 0.68
C4 3.3P
C44 1P
R71 270
Q3
D8
D1 MTZ10D
REG 9V
C10 33/16
C11 0.01
R60 68
C41 0.001
R63 100
Q10
R66 47
C45 120P
T1 41.25 MHz
C6 0.001
R11 22
C8 0.001
Q1
Q2
R64 560
C43 0.001
R65 150
T7 SIF 41.25MHz
C3 75P
R6 1K
R7 470
R10 47
C39 0.001
Q5, Q7 2SC536SPA(G)
Q6 2SA1309S
EE 12V
R48 5.6K
R49 10K
R50 470
R53 10K
Q5
Q6
R46 100K
C31 3.3/50
R45 470
R47 10K
T5 S. DET 15.74MHz
C32 0.022
D6
R51 22K
Q7
D7
C33 0.47/50
R52 22K
R54 5.6K
R72 270
R73 330
R38 1.2K
Q4
CF4 5.5/5.74MHz
R39 1.5K
R40 6.8K
C29 33P
L5 27
R41 470
C30 0.01
R40 COLOR LEVEL
Q3 2SC1317(RS)
Q1,Q2,Q10 2SC3354
Q4 2SC536SPA(FG)

Note: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.

A
B
C
E
F
G
H

6

3.31 IF CIRCUIT BOARD

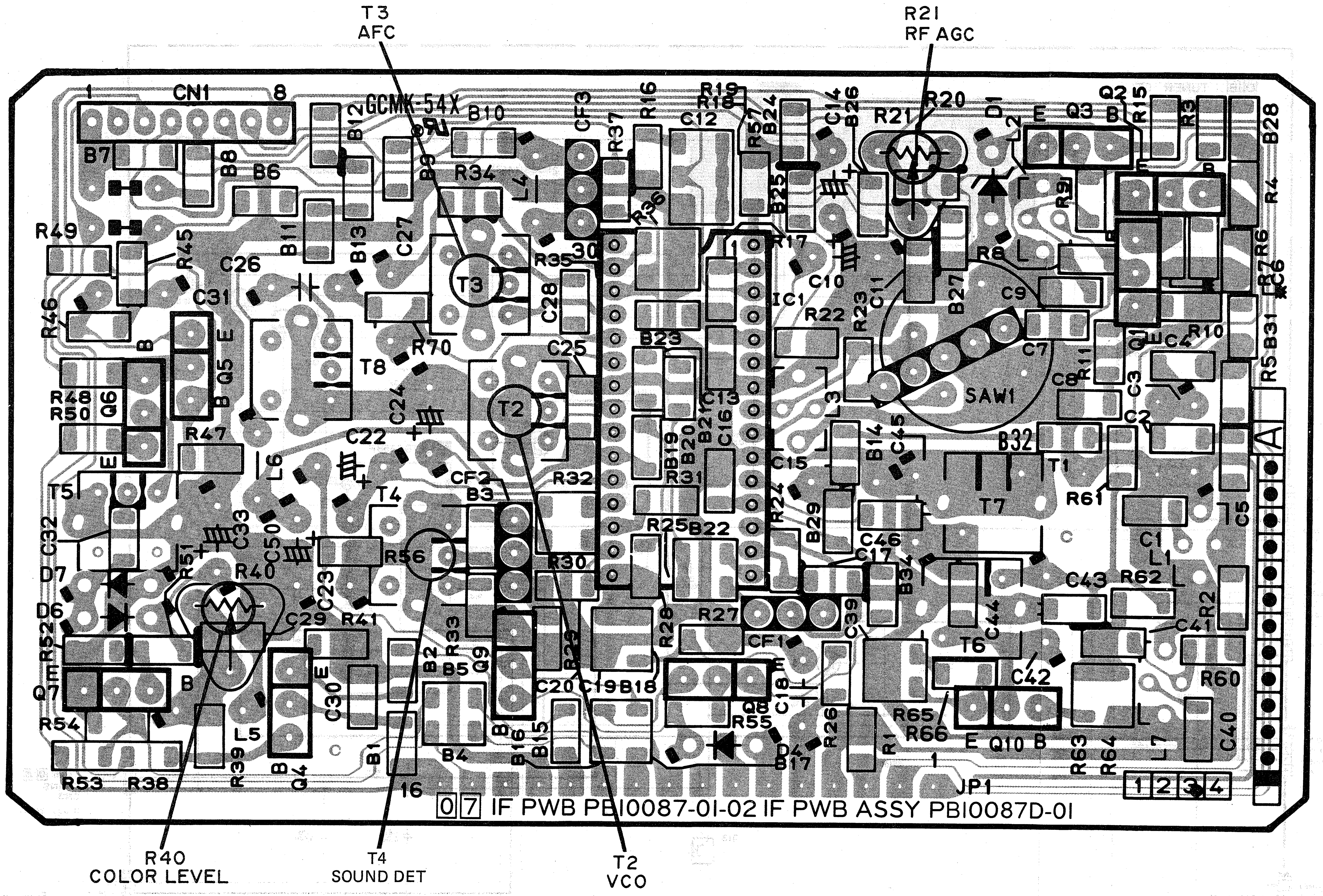
5

4

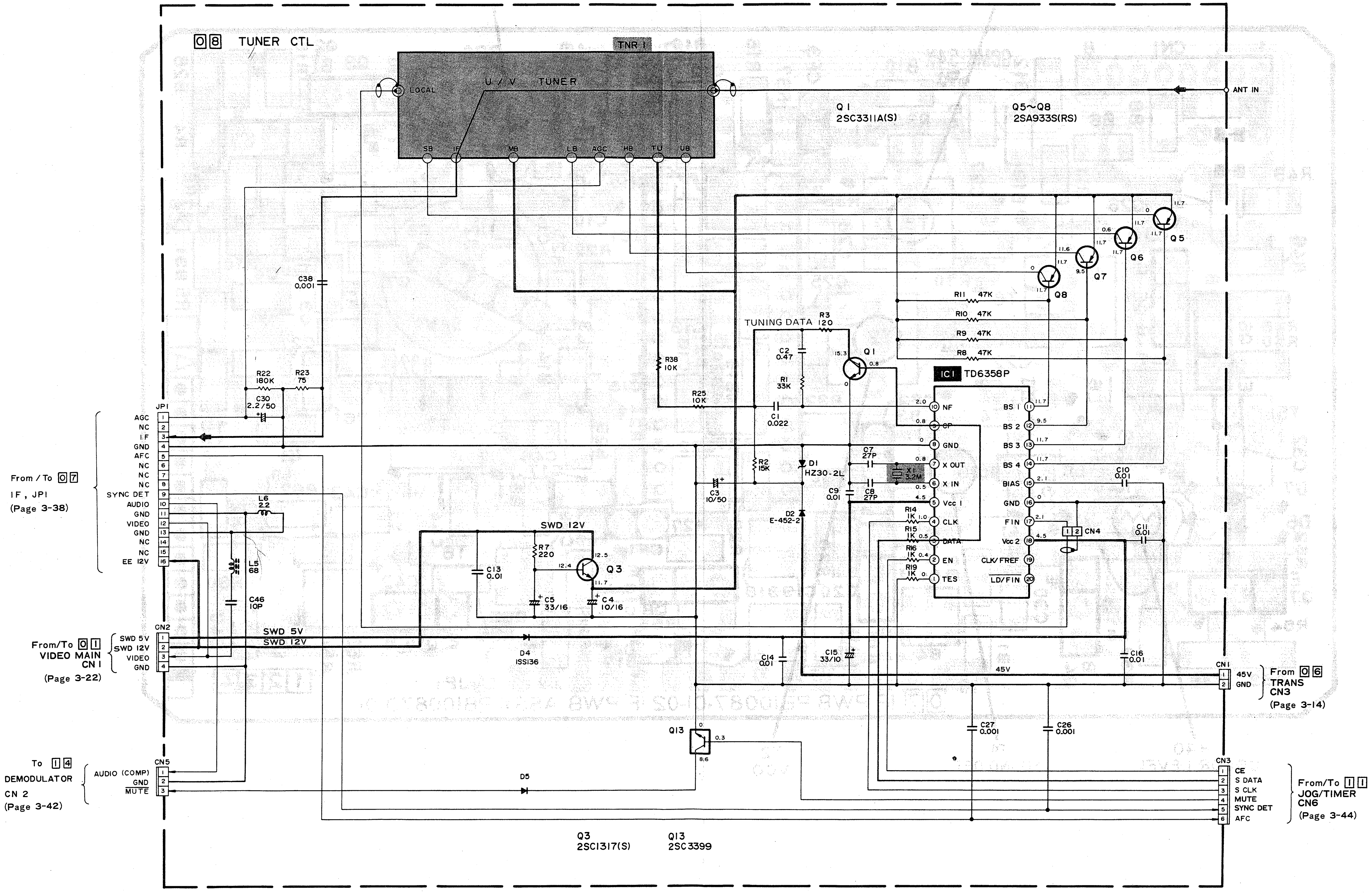
3

2

1


T3
AFC
R21
RF AGC
CN1
1
8
GCMK-54X
IC1
SAW1
JP1
1 2 3 4
A
07 IF PWB PB10087-01-02 IF PWB ASSY PB10087D-01
R40
COLOR LEVEL
T4
SOUND DET
T2
VCO

3.32 TUNER CONTROL SCHEMATIC DIAGRAM


08 TUNER CTL
TNR 1
U / V TUNER
LOCAL
SB
IF
MB
LB
AGC
HB
TU
UB
ANT IN
Q1 2SC3311A(S)
Q5~Q8 2SA933S(RS)
Q5
Q6
Q7
Q8
R11 47K
R10 47K
R9 47K
R8 47K
TUNING DATA
R3 120
C2 0.47
R1 33K
Q1
R38 10K
R25 10K
C1 0.022
R2 15K
D1 HZ30-2L
D2 E-452-2
C3 10/50
C7 27P
C8 27P
C9 0.01
X1 3.2M
IC1 TD6358P
10 NF
9 CP
8 GND
7 X OUT
6 X IN
5 Vcc 1
4 CLK
3 DATA
2 EN
1 TES
BS 1 11
BS 2 12
BS 3 13
BS 4 14
BIAS 15
GND 16
FIN 17
Vcc 2 18
CLK/FREF 19
LD/FIN 20
R14 1K
R15 1K
R16 1K
R19 1K
CN4
C10 0.01
C11 0.01
C38 0.001
R22 180K
R23 75
C30 2.2/50
JP1
AGC 1
NC 2
I.F 3
GND 4
AFC 5
NC 6
NC 7
NC 8
SYNC DET 9
AUDIO 10
GND 11
VIDEO 12
GND 13
NC 14
NC 15
EE 12V 16
From / To 07
IF , JP1
(Page 3-38)
L6 2.2
L5 68
C46 10P
SWD 12V
R7 220
C13 0.01
C5 33/16
C4 10/16
Q3
CN2
SWD 5V
SWD 12V
VIDEO
GND
From/To 01
VIDEO MAIN
CN 1
(Page 3-22)
D4 1SS136
C14 0.01
C15 33/10
C16 0.01
45V
CN1
45V
GND
From 06
TRANS
CN3
(Page 3-14)
C27 0.001
C26 0.001
Q13
D5
CN5
AUDIO (COMP)
GND
MUTE
To 14
DEMODULATOR
CN 2
(Page 3-42)
CN3
CE
S DATA
S CLK
MUTE
SYNC DET
AFC
From/To 11
JOG/TIMER
CN6
(Page 3-44)
Q3 2SC1317(S)
Q13 2SC3399

Note: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.

6

3.33 TUNER CONTROL CIRCUIT BOARD

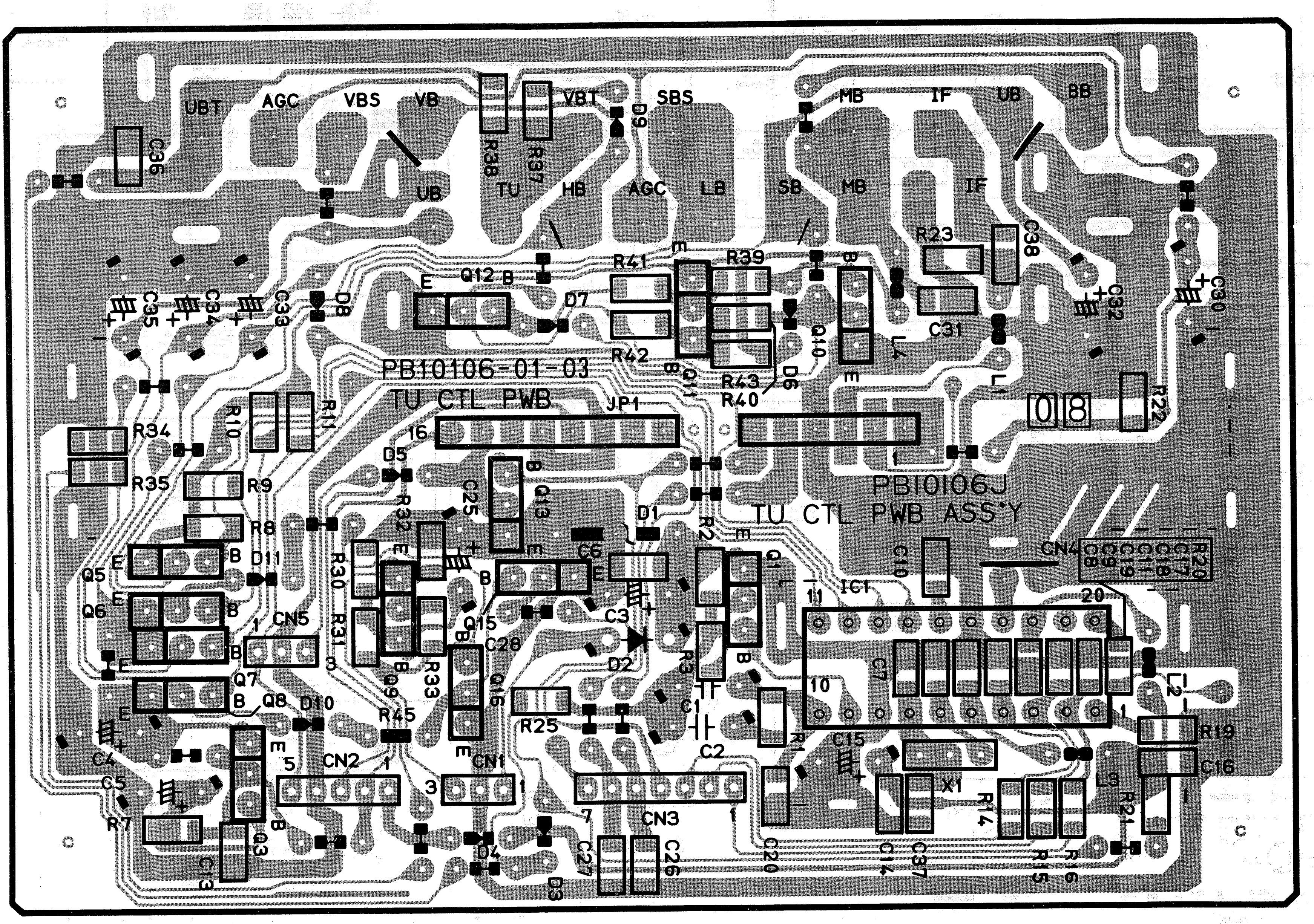
5

4

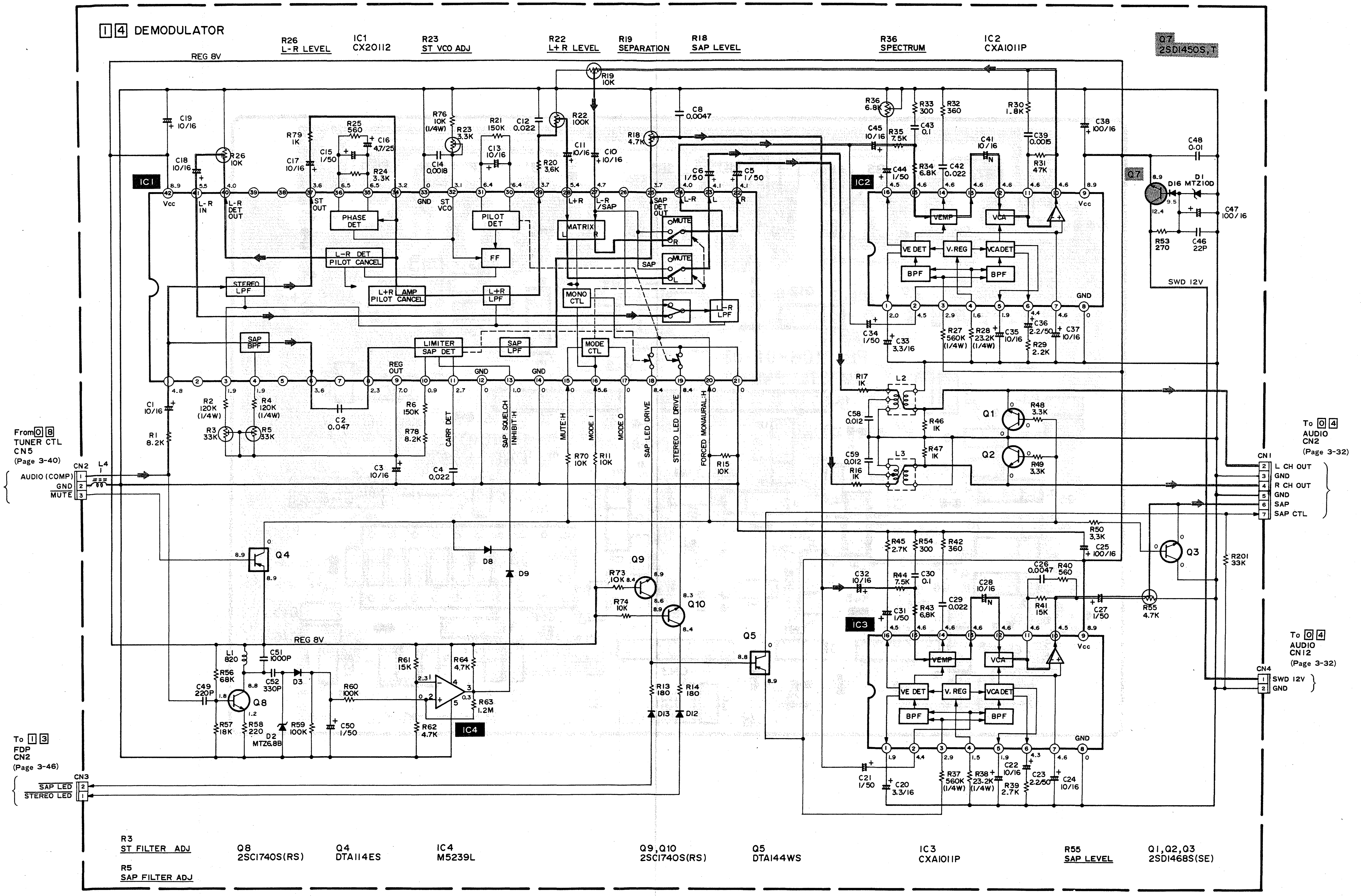
3

2

1

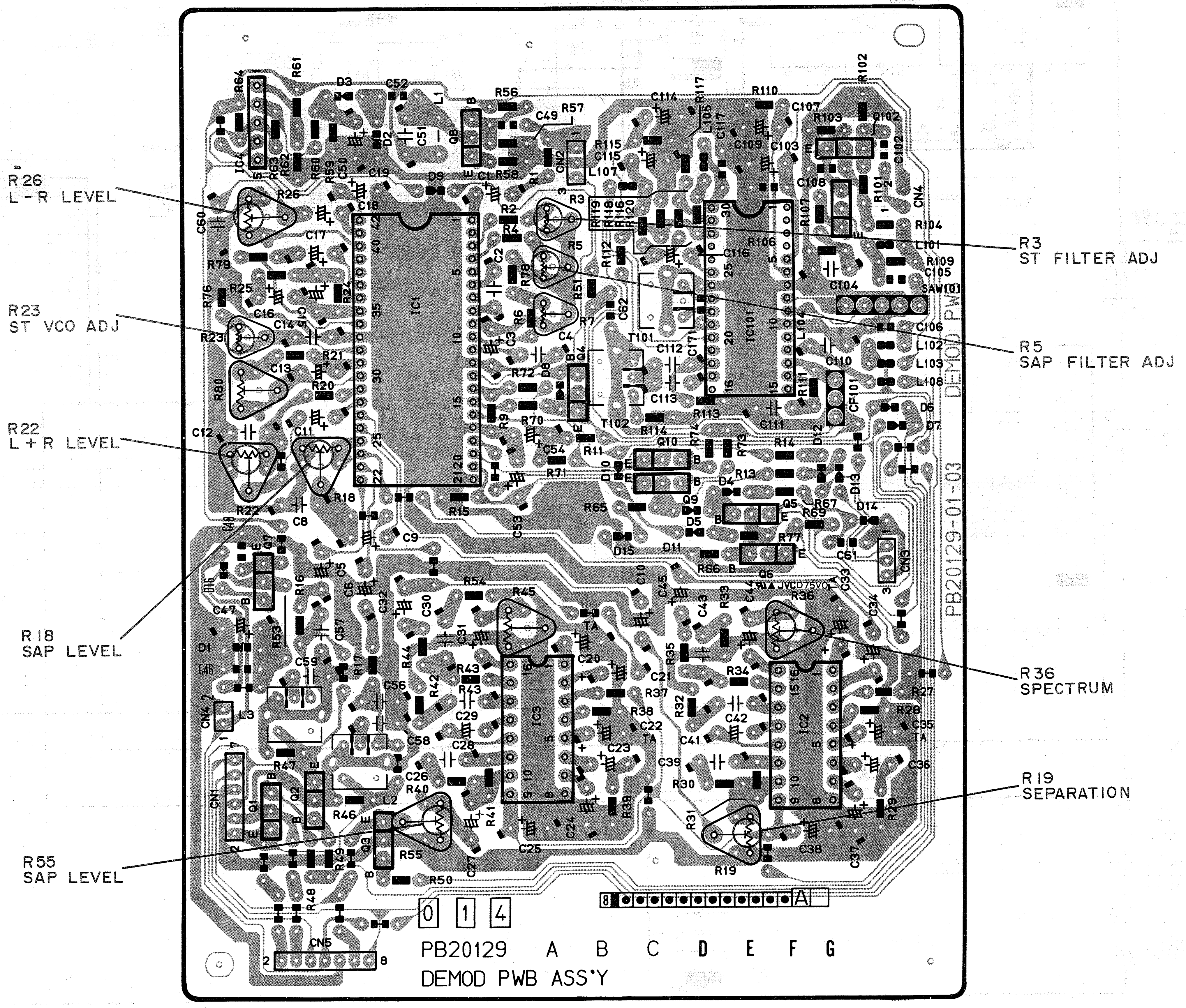

UBT
AGC
VBS
VB
R38
R37
VBT
D9
SBS
MB
IF
UB
BB
C36
UB
TU
HB
AGC
LB
SB
MB
IF
R23
C38
C35
C34
C33
D8
Q12
D7
R41
R39
Q10
L4
C31
C32
C30
R42
Q11
R43
D6
R40
L1
PB10106-01-03
TU CTL PWB
JP1
08
R22
R10
R11
R34
R35
R9
R8
D5
R32
C25
Q13
D1
R2
PB10106J
TU CTL PWB ASS'Y
C10
CN4
C8
C9
C11
C18
C19
C17
C20
R20
Q5
Q6
D11
R30
C6
Q1
IC1
CN5
R31
Q9
R33
Q15
C28
Q16
C3
D2
R3
C7
L2
Q7
Q8
D10
R45
R25
C1
C2
R1
C15
R19
C16
C4
C5
R7
C13
Q3
CN2
CN1
CN3
D4
D3
C27
C26
C20
X1
C14
C37
R14
R15
R16
L3
R21

3.34 DEMODULATOR SCHEMATIC DIAGRAM

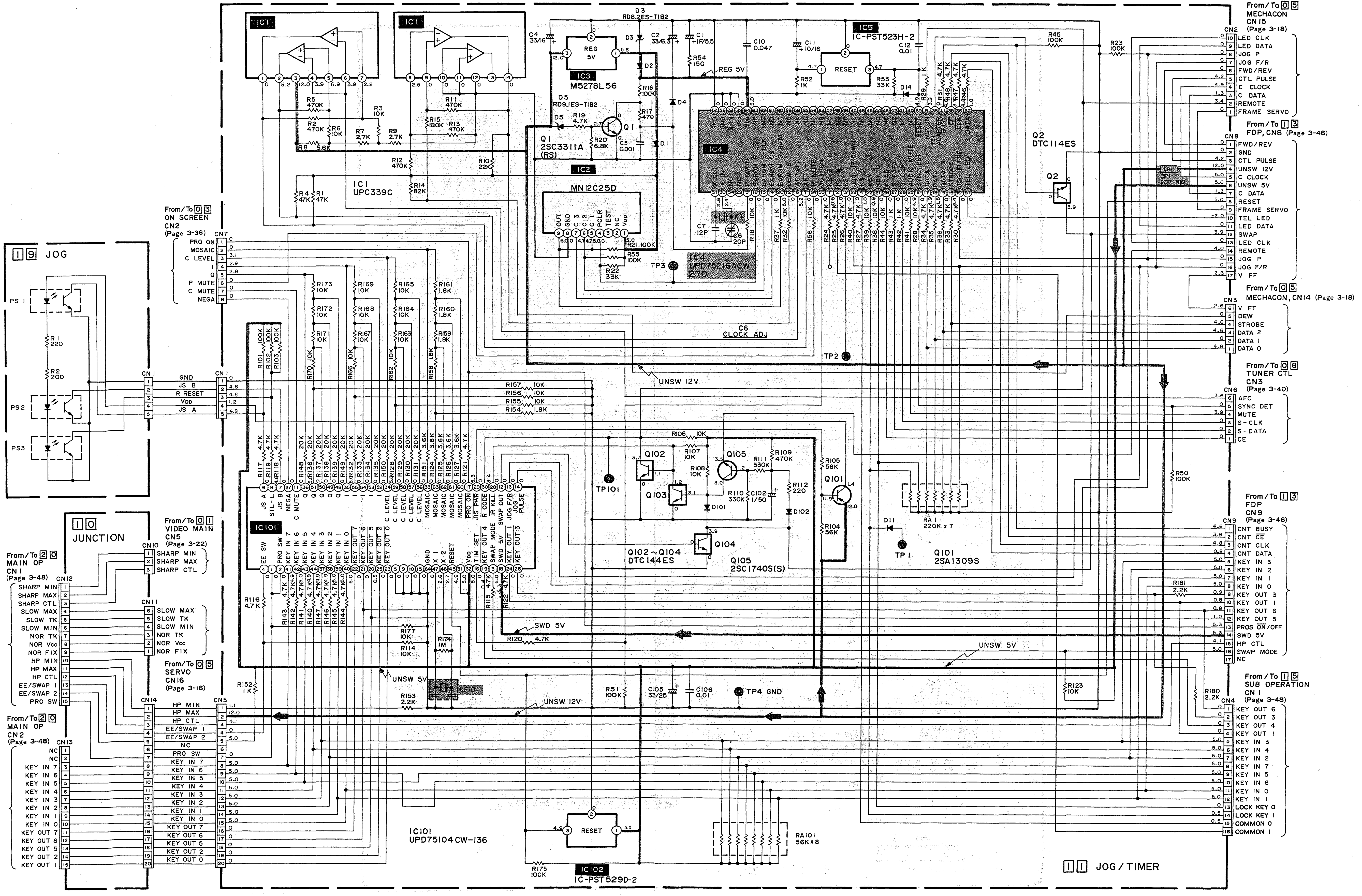

14 DEMODULATOR
REG 8V
R26 L-R LEVEL
IC1 CX20112
R23 ST VCO ADJ
R22 L+R LEVEL
R19 SEPARATION
R18 SAP LEVEL
R36 SPECTRUM
IC2 CXA1011P
Q7 2SD1450S,T
IC1
IC2
IC3
IC4
PHASE DET
PILOT DET
L-R DET PILOT CANCEL
FF
L+R AMP PILOT CANCEL
L+R LPF
STEREO LPF
SAP BPF
LIMITER SAP DET
SAP LPF
MATRIX
MUTE
MONO CTL
MODE CTL
L-R LPF
VEMP
VCA
VE DET
V.REG
VCA DET
BPF
Vcc
GND
L-R IN
L-R DET OUT
ST OUT
ST VCO
REG OUT
L+R
L-R /SAP
SAP DET OUT
CARR DET
SAP SQUELCH INHIBIT:H
MUTE:H
MODE I
MODE O
SAP LED DRIVE
STEREO LED DRIVE
FORCED MONAURAL:H
From 08 TUNER CTL CN5 (Page 3-40)
CN2
AUDIO (COMP)
GND
MUTE
L4
To 13 FDP CN2 (Page 3-46)
CN3
SAP LED
STEREO LED
To 04 AUDIO CN2 (Page 3-32)
CN1
L CH OUT
GND
R CH OUT
GND
SAP
SAP CTL
To 04 AUDIO CN12 (Page 3-32)
CN4
SWD 12V
GND
SWD 12V
Q1
Q2
Q3
Q4
Q5
Q8
Q9
Q10
L1 820
L2
L3
D1 MTZ10D
D2 MTZ6.8B
D3
D8
D9
D12
D13
D16
R1 8.2K
R2 120K (1/4W)
R3 33K
R4 120K (1/4W)
R5 33K
R6 150K
R11 10K
R13 180
R14 180
R15 10K
R16 1K
R17 1K
R18 4.7K
R19 10K
R20 3.6K
R21 150K
R22 100K
R23 3.3K
R24 3.3K
R25 560
R26 10K
R27 560K (1/4W)
R28 23.2K (1/4W)
R29 2.2K
R30 1.8K
R31 47K
R32 360
R33 300
R34 6.8K
R35 7.5K
R36 6.8K
R37 560K (1/4W)
R38 23.2K (1/4W)
R39 2.7K
R40 560
R41 15K
R42 360
R43 6.8K
R44 7.5K
R45 2.7K
R46 1K
R47 1K
R48 3.3K
R49 3.3K
R50 3.3K
R53 270
R54 300
R55 4.7K
R56 68K
R57 18K
R58 220
R59 100K
R60 100K
R61 15K
R62 4.7K
R63 1.2M
R64 4.7K
R70 10K
R73 10K
R74 10K
R76 10K (1/4W)
R78 8.2K
R79 1K
R201 33K
C1 10/16
C2 0.047
C3 10/16
C4 0.022
C5 1/50
C6 1/50
C8 0.0047
C10 10/16
C11 10/16
C12 0.022
C13 10/16
C14 0.0018
C15 1/50
C16 4.7/25
C17 10/16
C18 10/16
C19 10/16
C20 3.3/16
C21 1/50
C22 10/16
C23 2.2/50
C24 10/16
C25 100/16
C26 0.0047
C27 1/50
C28 10/16
C29 0.022
C30 0.1
C31 1/50
C32 10/16
C33 3.3/16
C34 1/50
C35 10/16
C36 2.2/50
C37 10/16
C38 100/16
C39 0.0015
C41 10/16
C42 0.022
C43 0.1
C44 1/50
C45 10/16
C46 22P
C47 100/16
C48 0.01
C49 220P
C50 1/50
C51 1000P
C52 330P
C58 0.012
C59 0.012
R3 ST FILTER ADJ
R5 SAP FILTER ADJ
Q8 2SC1740S(RS)
Q4 DTA114ES
IC4 M5239L
Q9,Q10 2SC1740S(RS)
Q5 DTA144WS
IC3 CXA1011P
R55 SAP LEVEL
Q1,Q2,Q3 2SD1468S(SE)

Note: Voltages are DC-measured with a digital voltmeter during stop and tuner mode.

3.35 DEMODULATOR CIRCUIT BOARD


R26
L-R LEVEL
R23
ST VCO ADJ
R22
L+R LEVEL
R18
SAP LEVEL
R55
SAP LEVEL
R3
ST FILTER ADJ
R5
SAP FILTER ADJ
R36
SPECTRUM
R19
SEPARATION
IC1
IC101
IC2
IC3
T101
T102
SAW101
CF101
CN1
CN2
CN3
CN4
CN5
PB20129-01-03
DEMOD PW
JVCD75V0
0 1 4
8 AI
PB20129 A B C D E F G
DEMOD PWB ASS'Y

3.36 JOG/TIMER, JUNCTION AND JOG SCHEMATIC DIAGRAMS



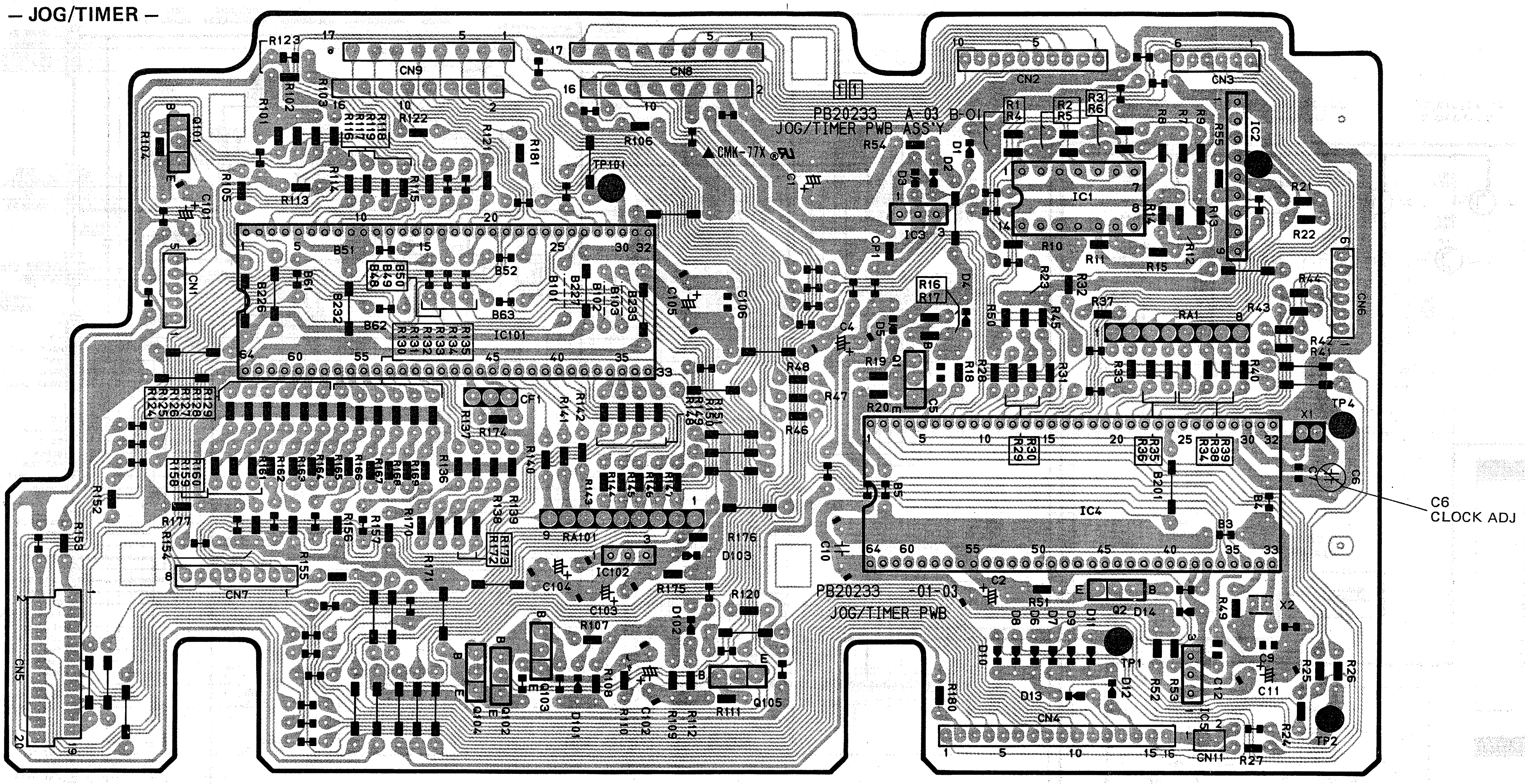
19 JOG
PS1
PS2
PS3
R1 220
R2 200
10 JUNCTION
From/To 20 MAIN OP CN1 (Page 3-48) CN12
SHARP MIN
SHARP MAX
SHARP CTL
SLOW MAX
SLOW TK
SLOW MIN
NOR TK
NOR Vcc
NOR FIX
HP MIN
HP MAX
HP CTL
EE/SWAP 1
EE/SWAP 2
PRO SW
From/To 20 MAIN OP CN2 (Page 3-48) CN13
KEY IN 7
KEY IN 6
KEY IN 5
KEY IN 4
KEY IN 3
KEY IN 2
KEY IN 1
KEY IN 0
KEY OUT 7
KEY OUT 6
KEY OUT 5
KEY OUT 2
KEY OUT 1
From/To 01 VIDEO MAIN CN5 (Page 3-22) CN10
From/To 05 SERVO CN16 (Page 3-16)
From/To 03 ON SCREEN CN2 (Page 3-36) CN7
PRO ON
MOSAIC
C LEVEL
P MUTE
C MUTE
NEGA
CN1 GND JS B R RESET VDD JS A
IC1 UPC339C
IC2 MN12C25D
IC3 M5278L56
IC4 UPD75216ACW-270
IC5 IC-PST523H-2
IC101 UPD75104CW-136
IC102 IC-PST529D-2
Q1 2SC3311A (RS)
Q2 DTC114ES
Q101 2SA1309S
Q102~Q104 DTC144ES
Q105 2SC1740S(S)
D3 RD8.2ES-T1B2
D5 RD9.1ES-T1B2
REG 5V
RESET
C6 CLOCK ADJ
UNSW 12V
UNSW 5V
SWD 5V
TP1 TP2 TP3 TP4 GND TP101
RA1 220K×7
RA101 56K×8
From/To 05 MECHACON CN15 (Page 3-18) CN2
LED CLK
LED DATA
JOG P
JOG F/R
FWD/REV
CTL PULSE
C CLOCK
C DATA
REMOTE
FRAME SERVO
From/To 13 FDP, CN8 (Page 3-46)
From/To 05 MECHACON, CN14 (Page 3-18) CN3
V FF
DEW
STROBE
DATA 2
DATA 1
DATA 0
From/To 08 TUNER CTL CN3 (Page 3-40) CN6
AFC
SYNC DET
MUTE
S-CLK
S-DATA
CE
From/To 13 FDP CN9 (Page 3-46)
CNT BUSY
CNT CE
CNT CLK
CNT DATA
PROS ON/OFF
SWD 5V
HP CTL
SWAP MODE
NC
From/To 15 SUB OPERATION CN1 (Page 3-48) CN4
LOCK KEY 0
LOCK KEY 1
COMMON 0
COMMON 1
11 JOG/TIMER

Note: Voltages are DC-measured with a digital voltmeter during atop and tuner mode.

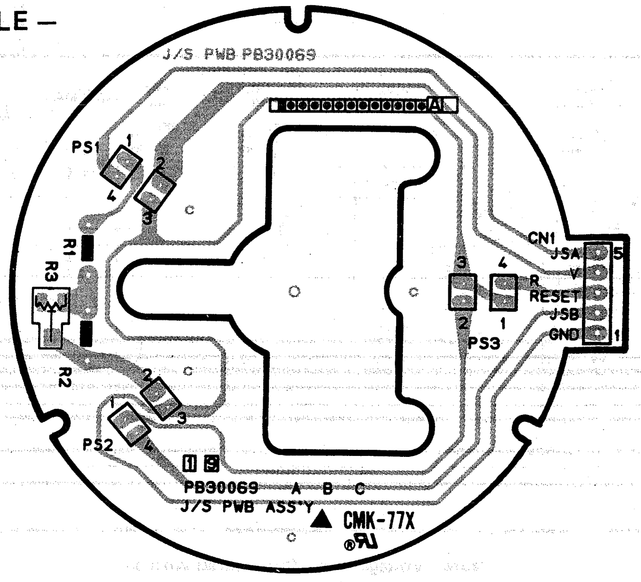
6
5
4
3
2
1

3.37 JOG/TIMER AND JOG SHUTTLE CIRCUIT BOARDS

– JOG/TIMER –

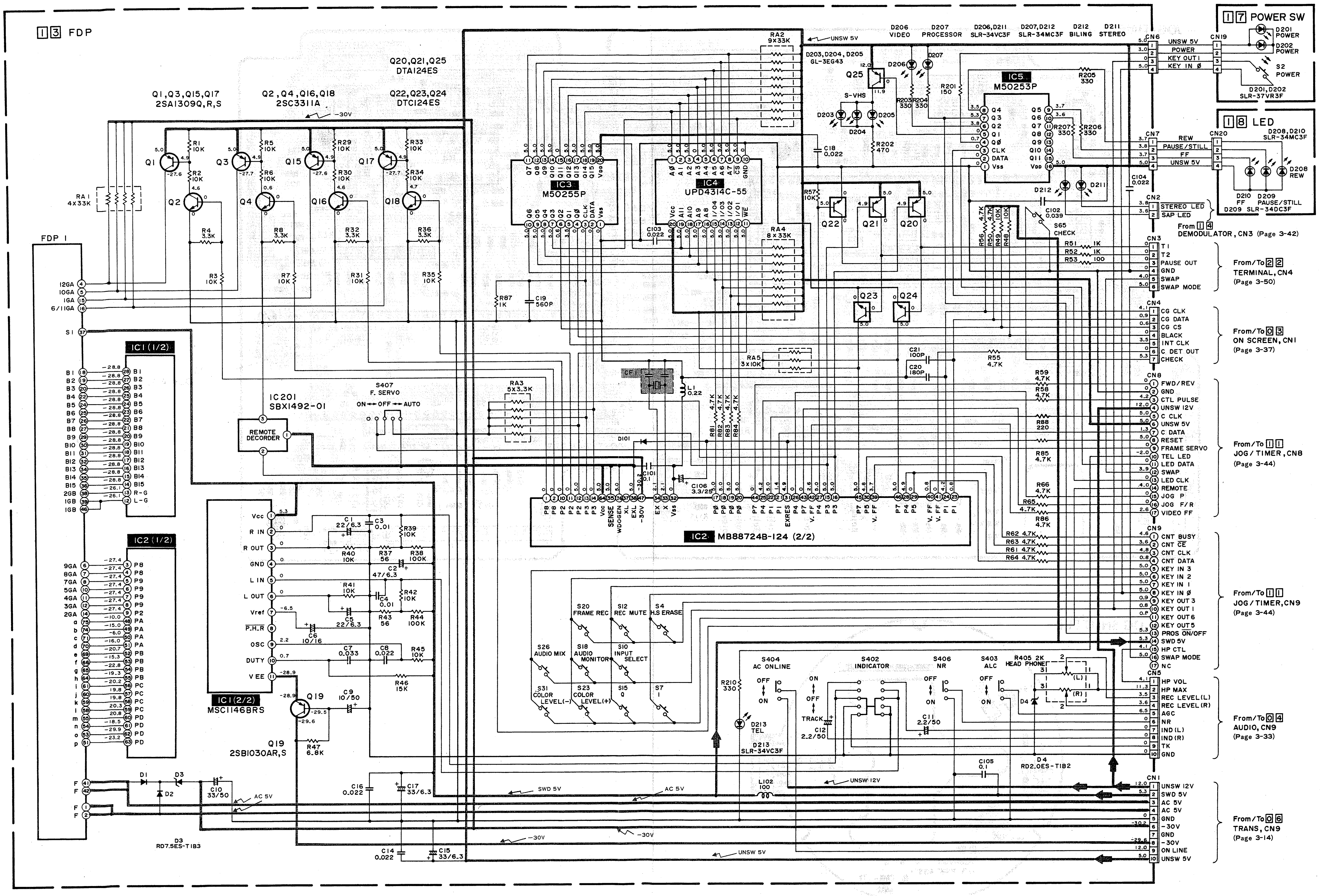

PB20233 A-03 B-01
JOG/TIMER PWB ASS'Y
▲ CMK-77X
PB20233 -01-03
JOG/TIMER PWB
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN11
IC1
IC2
IC3
IC4
IC5
IC101
IC102
RA1
RA101
CF1
X1
X2
TP1
TP2
TP4
TP101
Q101
Q102
Q103
Q104
Q105
C6
CLOCK ADJ

– JOG SHUTTLE –


J/S PWB PB30069
PS1
PS2
PS3
R1
R2
R3
CN1
JSA
V
R
RESET
JSB
GND
PB30069 A B C
J/S PWB ASS'Y
▲ CMK-77X

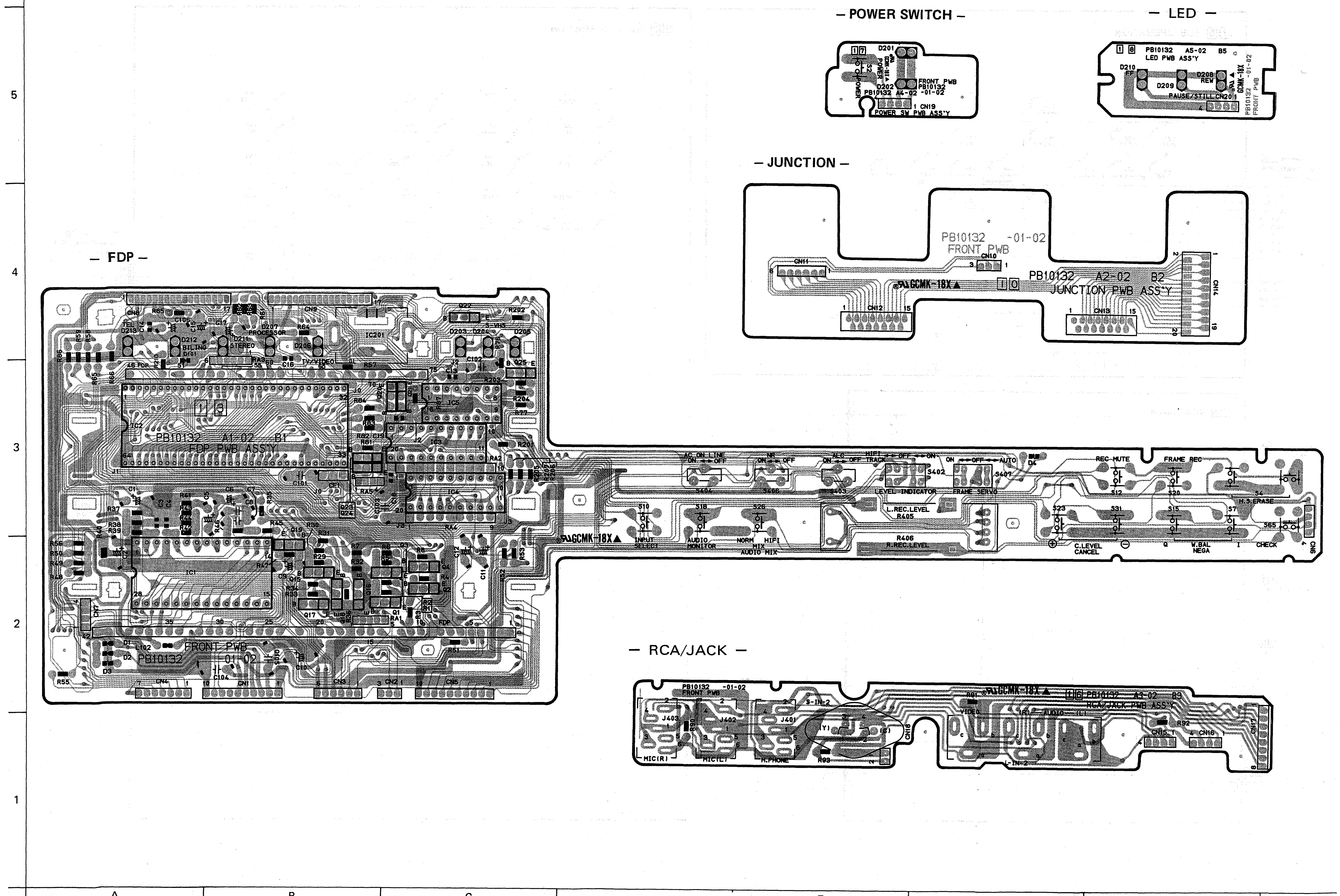
A B C D E F G H

3.38 FRONT (FDP, POWER SWITCH AND LED) SCHEMATIC DIAGRAMS

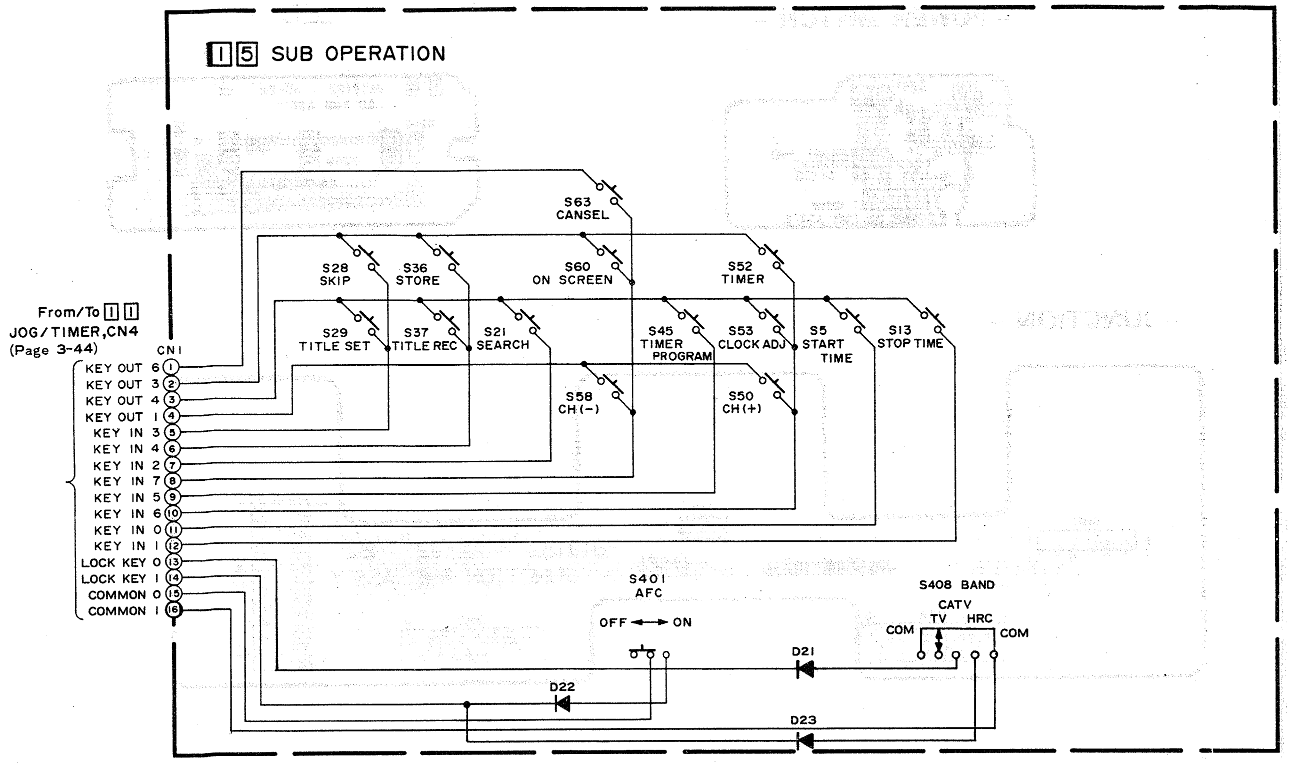

13 FDP
17 POWER SW
18 LED
FDP 1
IC1 (1/2)
IC2 (1/2)
IC1 (2/2)
MSC1146BRS
IC2 MB88724B-124 (2/2)
IC3 M50255P
IC4 UPD4314C-55
IC5 M50253P
IC201 SBX1492-01
REMOTE DECORDER
Q1,Q3,Q15,Q17 2SA1309Q,R,S
Q2,Q4,Q16,Q18 2SC3311A
Q20,Q21,Q25 DTA124ES
Q22,Q23,Q24 DTC124ES
Q19 2SB1030AR,S
D3 RD7.5ES-T1B3
D4 RD2.0ES-T1B2
D213 SLR-34VC3F
D201,D202 SLR-37VR3F
D203,D204,D205 GL-3EG43
D206 VIDEO
D207 PROCESSOR
D206,D211 SLR-34VC3F
D207,D212 SLR-34MC3F
D212 BILING
D211 STEREO
D208,D210 SLR-34MC3F
D209 SLR-34DC3F
S407 F. SERVO ON OFF AUTO
S404 AC ONLINE
S402 INDICATOR
S406 NR
S403 ALC
R405 2K HEAD PHONE
S20 FRAME REC
S12 REC MUTE
S4 H.S ERASE
S26 AUDIO MIX
S18 AUDIO MONITOR
S10 INPUT SELECT
S31 COLOR LEVEL(−)
S23 COLOR LEVEL(+)
S65 CHECK
S2 POWER
CN1 UNSW 12V, SWD 5V, AC 5V, AC 5V, GND, −30V, GND, −30V, ON LINE, UNSW 5V
From/To 06 TRANS, CN9 (Page 3-14)
CN5 HP VOL, HP MAX, REC LEVEL(L), REC LEVEL(R), AGC, NR, IND(L), IND(R), TK, GND
From/To 04 AUDIO, CN9 (Page 3-33)
CN9 CNT BUSY, CNT CE, CNT CLK, CNT DATA, KEY IN 3, KEY IN 2, KEY IN 1, KEY IN Ø, KEY OUT 3, KEY OUT 1, KEY OUT6, KEY OUT5, PROS ON/OFF, SWD 5V, HP CTL, SWAP MODE, NC
From/To 11 JOG/TIMER, CN9 (Page 3-44)
CN8 FWD/REV, GND, CTL PULSE, UNSW 12V, C CLK, UNSW 5V, C DATA, RESET, FRAME SERVO, TEL LED, LED DATA, SWAP, LED CLK, REMOTE, JOG P, JOG F/R, VIDEO FF
From/To 11 JOG/TIMER, CN8 (Page 3-44)
CN4 CG CLK, CG DATA, CG CS, BLACK, INT CLK, C DET OUT, CHECK
From/To 03 ON SCREEN, CN1 (Page 3-37)
CN3 T1, T2, PAUSE OUT, GND, SWAP, SWAP MODE
From/To 22 TERMINAL, CN4 (Page 3-50)
CN2 STEREO LED, SAP LED
From 14 DEMODULATOR, CN3 (Page 3-42)
CN6 UNSW 5V, POWER, KEY OUT 1, KEY IN Ø
CN7 REW, PAUSE/STILL, FF, UNSW 5V
CN19
CN20
SWD 5V
AC 5V
UNSW 12V
UNSW 5V
−30V

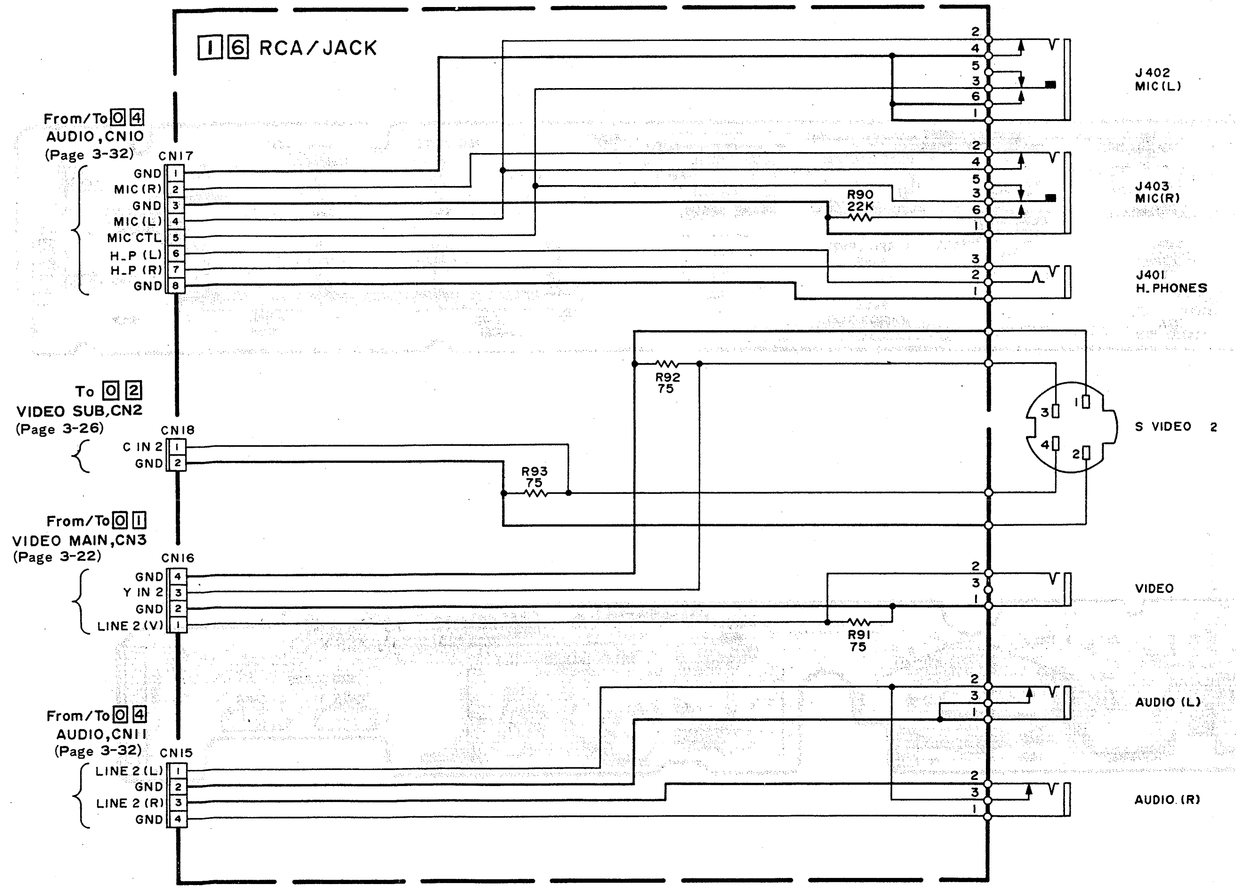
Note: Voltages are DC-measured with a digital voltemter during stop and tuner mode.

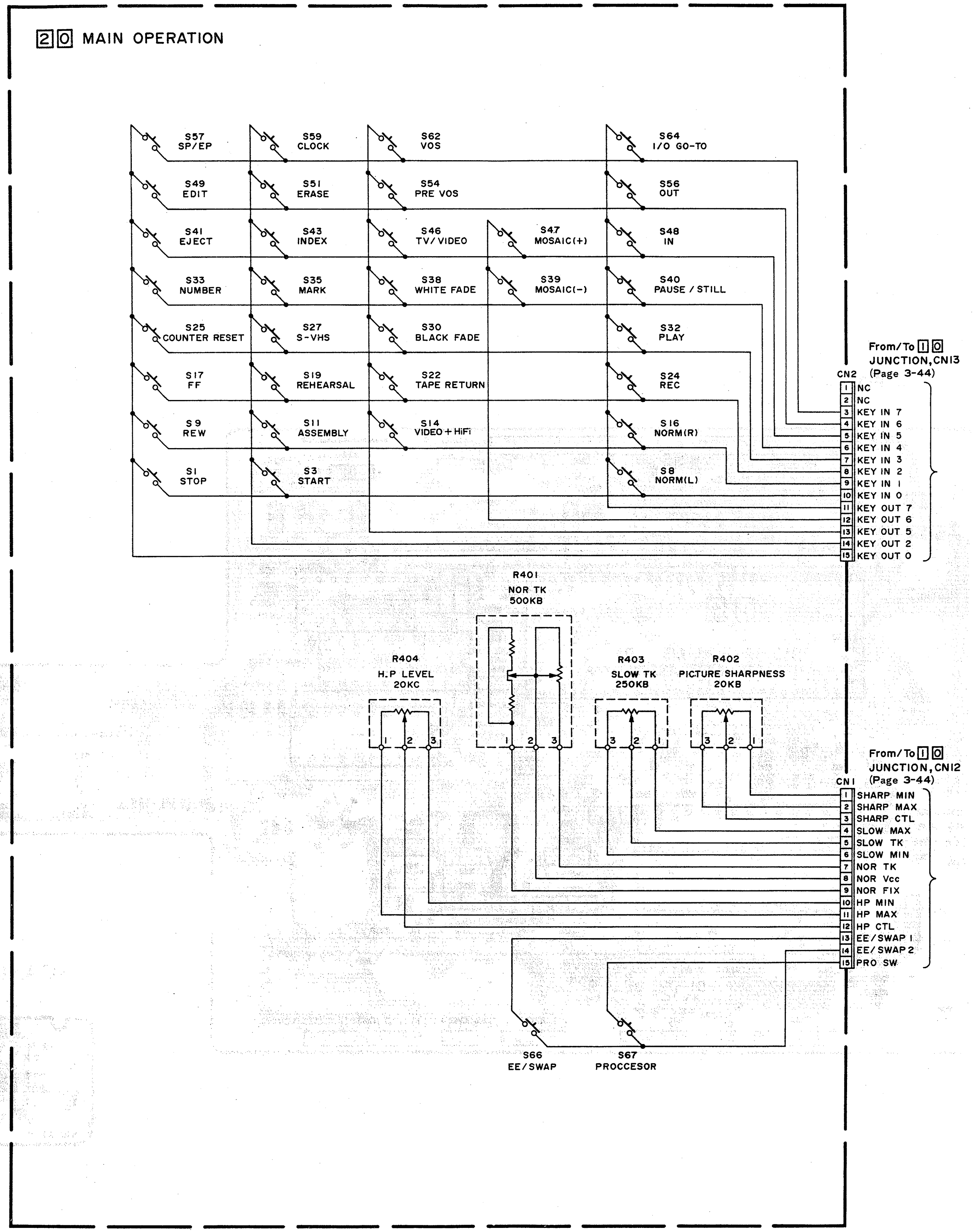
3.39 FRONT (FDP, JUNCTION, RCA/JACK, POWER SWITCH AND LED) CIRCUIT BOARDS


– POWER SWITCH –
PB10132 A4-02
POWER SW PWB ASS'Y
FRONT PWB PB10132 -01-02
– LED –
PB10132 A5-02 B5
LED PWB ASS'Y
PAUSE/STILL
– JUNCTION –
PB10132 -01-02
FRONT PWB
PB10132 A2-02 B2
JUNCTION PWB ASS'Y
GCMK-18X▲
CN11
CN12
CN13
CN14
CN10
– FDP –
PB10132 A1-02 B1
FDP PWB ASS'Y
FRONT PWB
PB10132 -01-02
GCMK-18X▲
IC1
IC2
IC5
AC ON LINE
REC MUTE
FRAME REC
LEVEL INDICATOR
FRAME SERVO
INPUT SELECT
AUDIO MONITOR
NORM MIX
HIFI
AUDIO MIX
L.REC.LEVEL
R.REC.LEVEL
C.LEVEL CANCEL
W.BAL NEGA
CHECK
H.S.ERASE
– RCA/JACK –
PB10132 -01-02
FRONT PWB
PB10132 A3-02 B3
RCA/JACK PWB ASS'Y
GCMK-18X▲
MIC(R)
MIC(L)
H.PHONE
VIDEO
AUDIO
J401
J402
J403
CN15
CN16
CN17
5
4
3
2
1
A
B
C
E
F
G
H

3.40 MAIN OPERATION, SUB OPERATION AND RCA/JACK SCHEMATIC DIAGRAMS

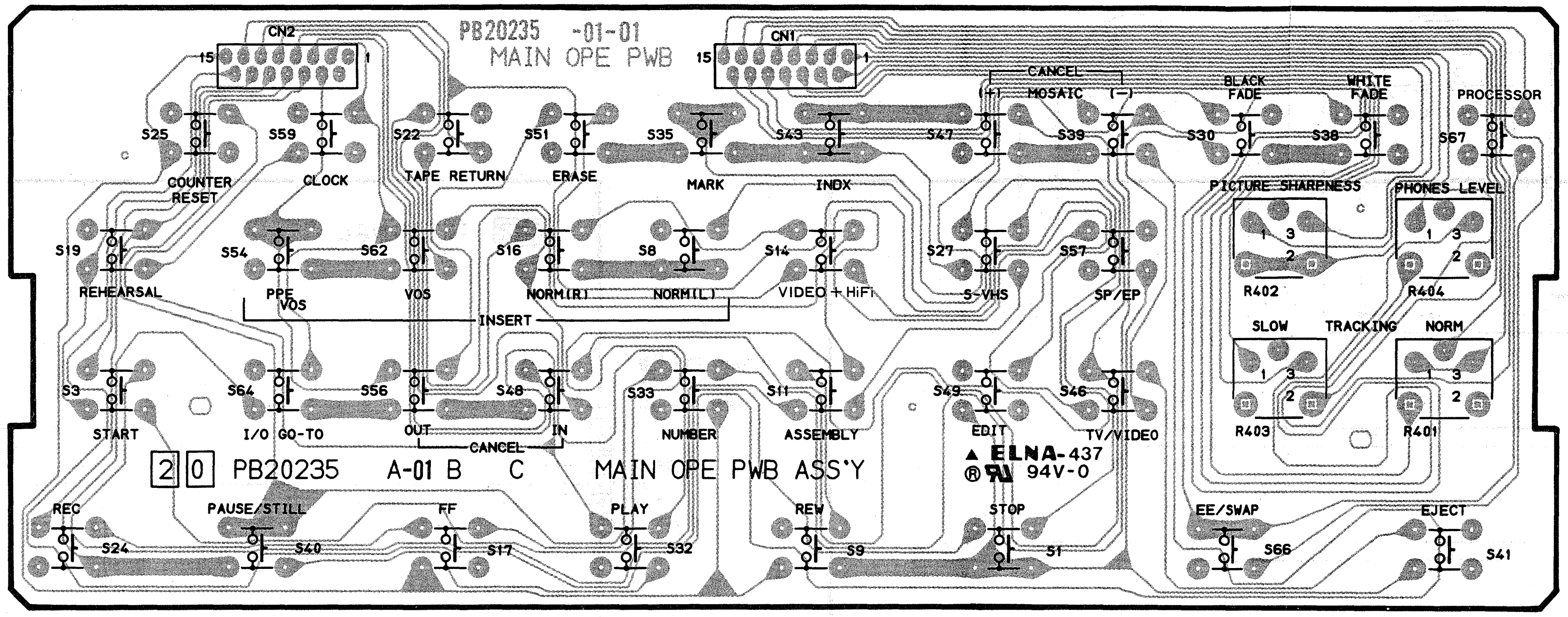

15 SUB OPERATION
From/To 11
JOG/TIMER,CN4
(Page 3-44)
CN1
KEY OUT 6 ①
KEY OUT 3 ②
KEY OUT 4 ③
KEY OUT 1 ④
KEY IN 3 ⑤
KEY IN 4 ⑥
KEY IN 2 ⑦
KEY IN 7 ⑧
KEY IN 5 ⑨
KEY IN 6 ⑩
KEY IN 0 ⑪
KEY IN 1 ⑫
LOCK KEY 0 ⑬
LOCK KEY 1 ⑭
COMMON 0 ⑮
COMMON 1 ⑯
S63
CANSEL
S28
SKIP
S36
STORE
S60
ON SCREEN
S52
TIMER
S29
TITLE SET
S37
TITLE REC
S21
SEARCH
S45
TIMER
PROGRAM
S53
CLOCK ADJ
S5
START
TIME
S13
STOP TIME
S58
CH(−)
S50
CH(+)
S401
AFC
OFF ◄─► ON
S408 BAND
CATV
TV
HRC
COM
COM
D21
D22
D23


16 RCA/JACK
From/To 04
AUDIO,CN10
(Page 3-32)
CN17
GND 1
MIC(R) 2
GND 3
MIC(L) 4
MIC CTL 5
H.P (L) 6
H.P (R) 7
GND 8
To 02
VIDEO SUB,CN2
(Page 3-26)
CN18
C IN 2 1
GND 2
From/To 01
VIDEO MAIN,CN3
(Page 3-22)
CN16
GND 4
Y IN 2 3
GND 2
LINE 2 (V) 1
From/To 04
AUDIO,CN11
(Page 3-32)
CN15
LINE 2 (L) 1
GND 2
LINE 2 (R) 3
GND 4
R90
22K
R92
75
R93
75
R91
75
J402
MIC(L)
J403
MIC(R)
J401
H. PHONES
S VIDEO 2
VIDEO
AUDIO (L)
AUDIO (R)
2
4
5
3
6
1
3
2
1
4
2

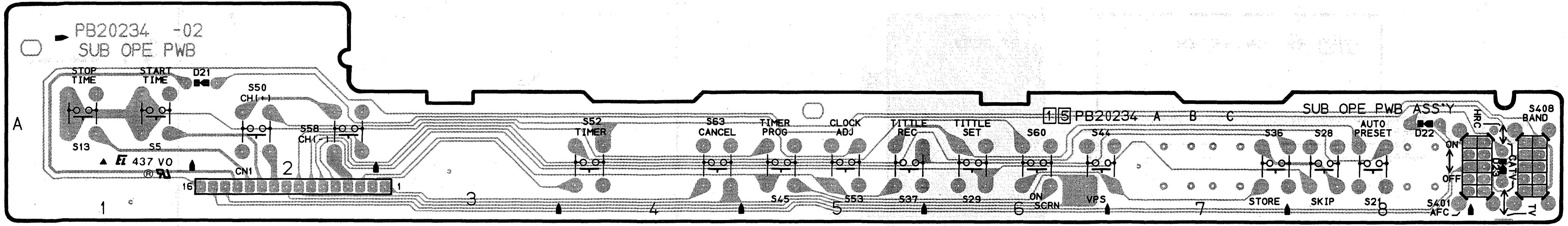

20 MAIN OPERATION
S57
SP/EP
S59
CLOCK
S62
VOS
S64
I/O GO-TO
S49
EDIT
S51
ERASE
S54
PRE VOS
S56
OUT
S41
EJECT
S43
INDEX
S46
TV/VIDEO
S47
MOSAIC(+)
S48
IN
S33
NUMBER
S35
MARK
S38
WHITE FADE
S39
MOSAIC(−)
S40
PAUSE / STILL
S25
COUNTER RESET
S27
S-VHS
S30
BLACK FADE
S32
PLAY
S17
FF
S19
REHEARSAL
S22
TAPE RETURN
S24
REC
S9
REW
S11
ASSEMBLY
S14
VIDEO + HiFi
S16
NORM(R)
S1
STOP
S3
START
S8
NORM(L)
From/To 10
JUNCTION,CN13
(Page 3-44)
CN2
1 NC
2 NC
3 KEY IN 7
4 KEY IN 6
5 KEY IN 5
6 KEY IN 4
7 KEY IN 3
8 KEY IN 2
9 KEY IN 1
10 KEY IN 0
11 KEY OUT 7
12 KEY OUT 6
13 KEY OUT 5
14 KEY OUT 2
15 KEY OUT 0
R401
NOR TK
500KB
R404
H.P LEVEL
20KC
R403
SLOW TK
250KB
R402
PICTURE SHARPNESS
20KB
From/To 10
JUNCTION,CN12
(Page 3-44)
CN1
1 SHARP MIN
2 SHARP MAX
3 SHARP CTL
4 SLOW MAX
5 SLOW TK
6 SLOW MIN
7 NOR TK
8 NOR Vcc
9 NOR FIX
10 HP MIN
11 HP MAX
12 HP CTL
13 EE/SWAP 1
14 EE/SWAP 2
15 PRO SW
S66
EE/SWAP
S67
PROCCESOR

3.41 MAIN OPERATION AND SUB OPERATION CIRCUIT BOARDS

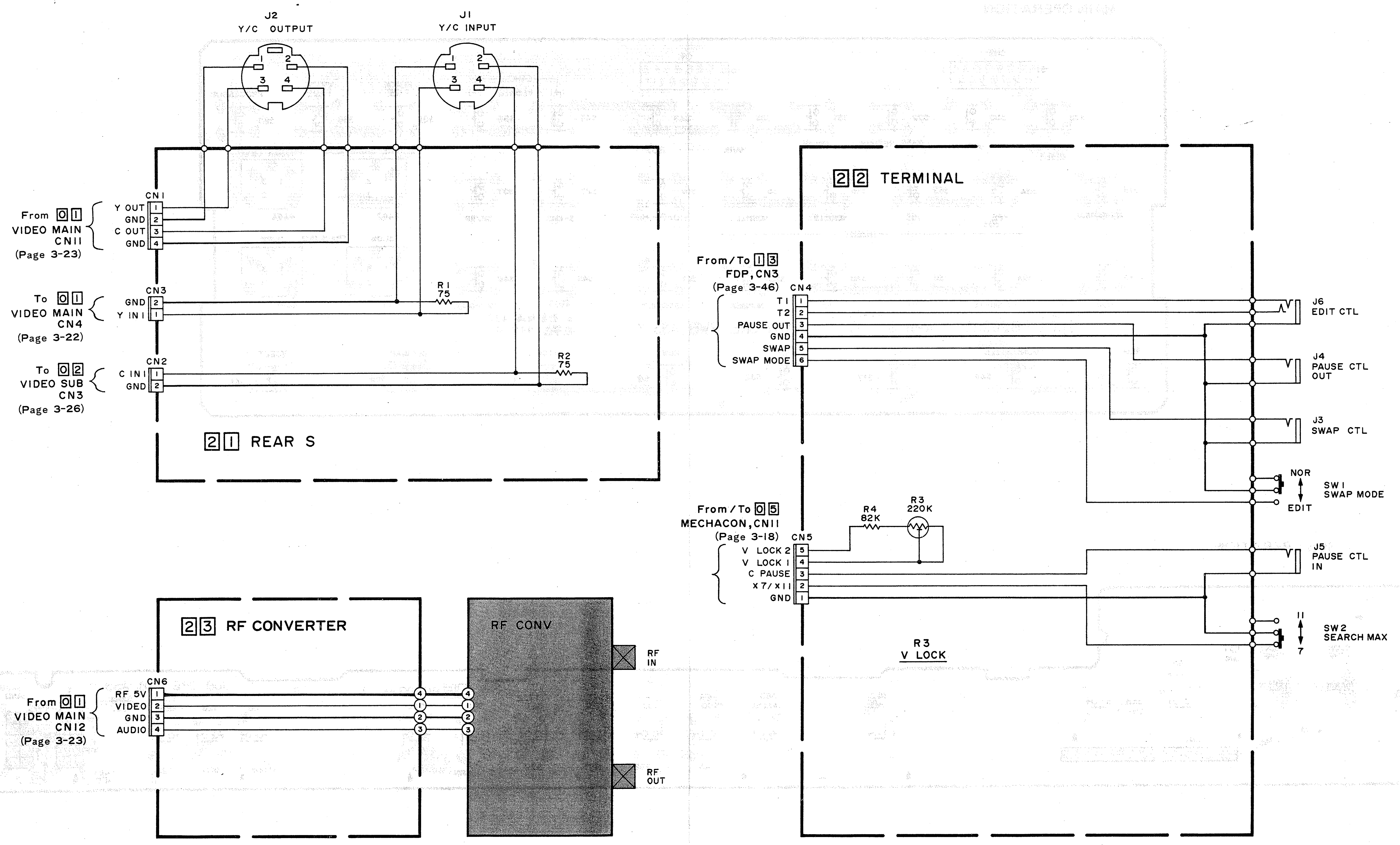
– MAIN OPERATION –


PB20235 -01-01
MAIN OPE PWB
CN2
CN1
15
1
CANCEL
(+) MOSAIC (−)
BLACK FADE
WHITE FADE
PROCESSOR
S25
COUNTER RESET
S59
CLOCK
S22
TAPE RETURN
S51
ERASE
S35
MARK
S43
INDX
S47
S39
S30
S38
S67
PICTURE SHARPNESS
PHONES LEVEL
R402
R404
S19
REHEARSAL
S54
PPE
VOS
S62
VOS
S16
NORM(R)
S8
NORM(L)
S14
VIDEO + HiFi
S27
S-VHS
S57
SP/EP
INSERT
SLOW
TRACKING
NORM
S3
START
S64
I/O GO-TO
S56
OUT
S48
IN
CANCEL
S33
NUMBER
S11
ASSEMBLY
S49
EDIT
S46
TV/VIDEO
R403
R401
2 0 PB20235 A-01 B C MAIN OPE PWB ASS'Y
▲ ELNA-437
94V-0
REC
S24
PAUSE/STILL
S40
FF
S17
PLAY
S32
REW
S9
STOP
S1
EE/SWAP
S66
EJECT
S41

– SUB OPERATION –

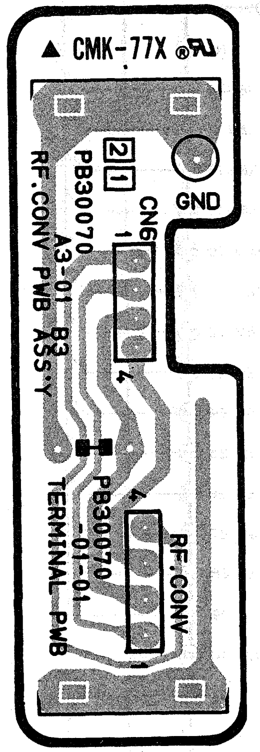

PB20234 -02
SUB OPE PWB
A
STOP TIME
START TIME
D21
S50
CH(+)
S13
S5
S58
CH(−)
▲ 437 VO
CN1
16
1
2
3
4
5
6
7
8
S52
TIMER
S63
CANCEL
TIMER PROG
CLOCK ADJ
TITTLE REC
TITTLE SET
S60
S44
S45
S53
S37
S29
ON SCRN
VPS
1 5 PB20234 A B C
SUB OPE PWB ASS'Y
S36
S28
AUTO PRESET
D22
STORE
SKIP
S21
S401
AFC
HRC
ON
OFF
CATV
TV
S408
BAND

3.42 TERMINAL (TERMINAL, REAR S AND CONVERTER) SCHEMATIC DIAGRAMS

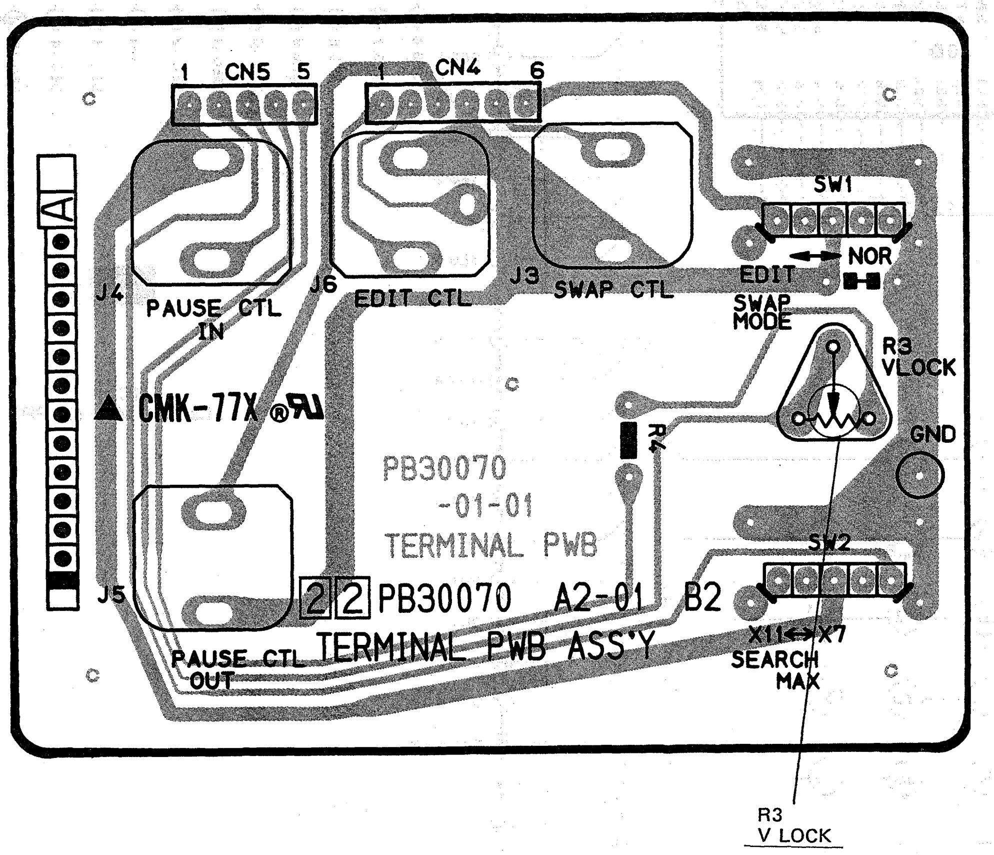

J2
Y/C OUTPUT
J1
Y/C INPUT
1 2 3 4
CN1
From 01 VIDEO MAIN CN11 (Page 3-23)
Y OUT 1
GND 2
C OUT 3
GND 4
CN3
To 01 VIDEO MAIN CN4 (Page 3-22)
GND 2
Y IN 1
R1 75
CN2
To 02 VIDEO SUB CN3 (Page 3-26)
C IN 1
GND 2
R2 75
21 REAR S
22 TERMINAL
From/To 13 FDP, CN3 (Page 3-46)
CN4
T1 1
T2 2
PAUSE OUT 3
GND 4
SWAP 5
SWAP MODE 6
J6 EDIT CTL
J4 PAUSE CTL OUT
J3 SWAP CTL
NOR
EDIT
SW1 SWAP MODE
From/To 05 MECHACON, CN11 (Page 3-18)
R4 82K
R3 220K
CN5
V LOCK 2 5
V LOCK 1 4
C PAUSE 3
X7/X11 2
GND 1
J5 PAUSE CTL IN
11
7
SW2 SEARCH MAX
R3 V LOCK
23 RF CONVERTER
RF CONV
RF IN
RF OUT
CN6
From 01 VIDEO MAIN CN12 (Page 3-23)
RF 5V 1
VIDEO 2
GND 3
AUDIO 4
4 1 2 3
A B C D E F G H
1 2 3 4 5 6

3.43 TERMINAL (TERMINAL, REAR S AND RF CONVERTER) CIRCUIT BOARDS

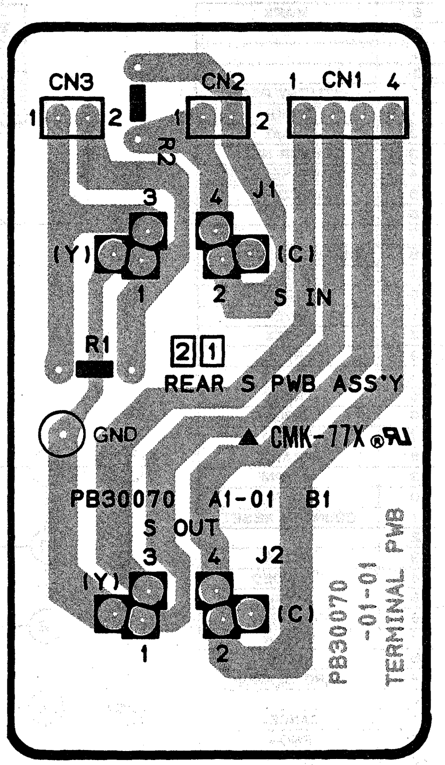
– RF CONVERTER –


▲ CMK-77X ®
2 1
PB30070 A3-01 B3
RF.CONV PWB ASS'Y
CN6
1
4
GND
4
PB30070
-01-01
TERMINAL PWB
RF.CONV

– TERMINAL –


1 CN5 5
1 CN4 6
A
J4
PAUSE CTL
IN
J6
EDIT CTL
J3
SWAP CTL
SW1
EDIT ↔ NOR
SWAP
MODE
R3
VLOCK
GND
▲ CMK-77X ®
R4
PB30070
-01-01
TERMINAL PWB
J5
2 2 PB30070 A2-01 B2
TERMINAL PWB ASS'Y
PAUSE CTL
OUT
SW2
X11↔X7
SEARCH
MAX
R3
V LOCK

– REAR S –

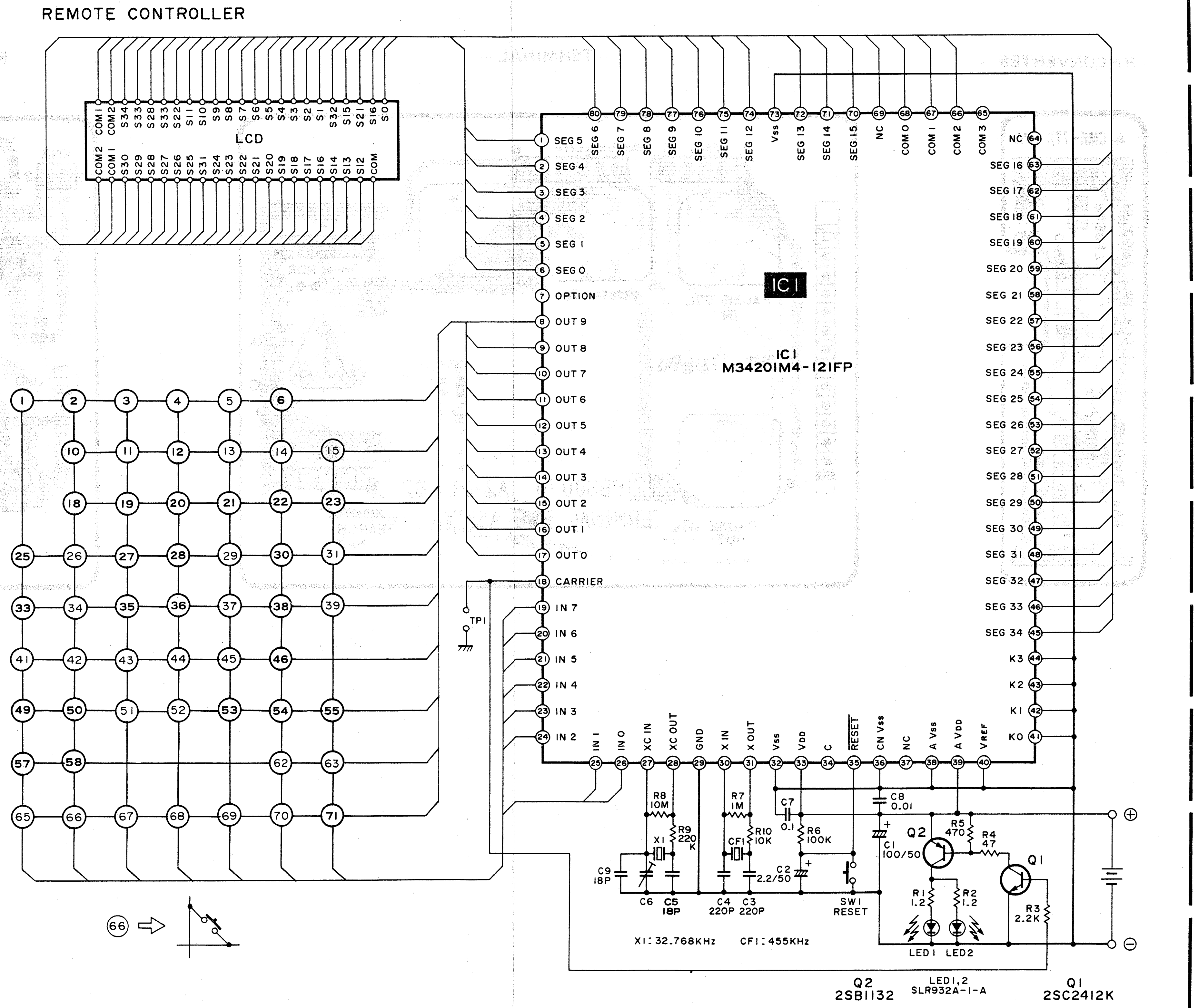

CN3
1 2
CN2
1 2
1 CN1 4
R2
3
4
J1
(Y)
(C)
1
2
S IN
R1
2 1
REAR S PWB ASS'Y
GND
▲ CMK-77X ®
PB30070 A1-01 B1
S OUT
3
4
J2
(Y)
(C)
1
2
PB30070
-01-01
TERMINAL PWB

3.44 REMOTE CONTROL SCHEMATIC DIAGRAM

Note:

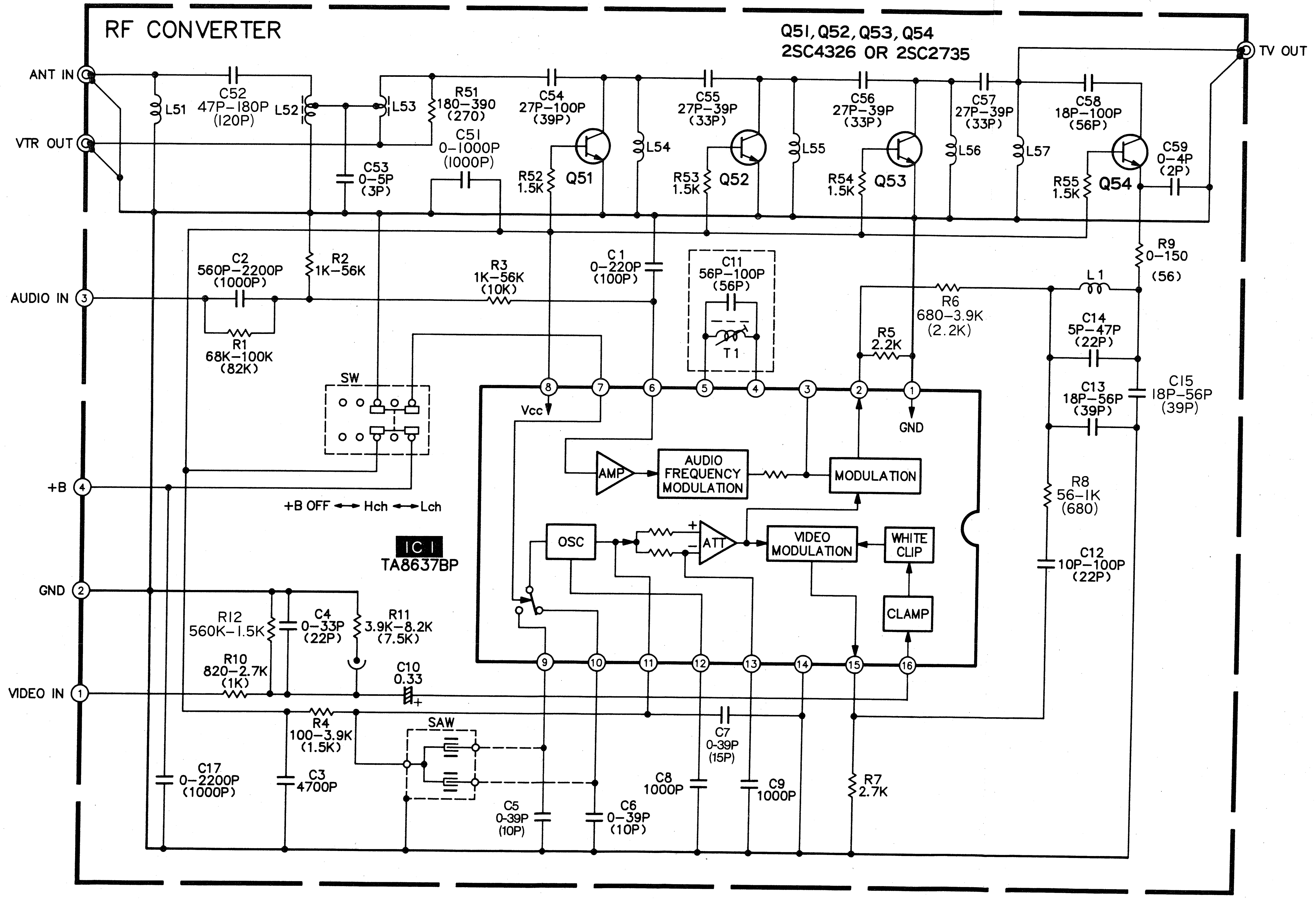
1. **All parts shown in this schematic are critical for safety.**
2. **This schematic is only for reference.**
   Avoid replacing individual parts.
   Replace the entire unit only.

KEY NUMBER	FUNCTION
1	A/B CODE
2	CLOCK ADJ
3	1/SUN
4	6/FRI
5	CURSOR BACK
6	MARK
7	
8	
9	
10	MEMORY PROG.
11	2/MON
12	7/SAT
13	CURSOR NEXT
14	INPUT SELECT
15	OS COUNT
16	
17	
18	MEMORY CANCEL
19	3/TUE
20	8/2ND
21	SP/EP
22	INDEX
23	ERASE
24	
25	TRANS
26	DISPLAY
27	4/WED
28	9/DAILY
29	AM/PM
30	GO-TO
31	COUNTER RESET
32	
33	TIMER
34	TV/VIDEO
35	5/THU
36	0/REPEAT
37	ENTER
38	INTRO
39	ZERO SEARCH
40	
41	CANCEL
42	PROG.
43	CH∨/−
44	CH∧/+
45	SELECT
46	L/R/STEREO
47	
48	
49	PLAY
50	EJECT
51	VARIABLE SEARCH》
52	VARIABLE SEARCH《
53	REC
54	PAUSE/STILL
55	STOP
56	
57	FF
58	REW
59	
60	
61	
62	TV MONITOR
63	SKIP SEARCH
64	
65	MONITOR(TV/VIDEO)
66	POWER(TV)
67	TV CH∨
68	TV CH∧
69	TV VOL+
70	TV VOL−
71	POWER(VIDEO)


REMOTE CONTROLLER
LCD
COM1 COM2 S34 S33 S28 S33 S22 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1 S32 S15 S21 S16 S0
COM2 COM1 S30 S29 S28 S27 S26 S25 S31 S24 S23 S22 S21 S20 S19 S18 S17 S16 S14 S13 S12 COM
IC1
IC1
M34201M4-121FP
SEG 5
SEG 4
SEG 3
SEG 2
SEG 1
SEG 0
OPTION
OUT 9
OUT 8
OUT 7
OUT 6
OUT 5
OUT 4
OUT 3
OUT 2
OUT 1
OUT 0
CARRIER
IN 7
IN 6
IN 5
IN 4
IN 3
IN 2
SEG 6
SEG 7
SEG 8
SEG 9
SEG 10
SEG 11
SEG 12
Vss
SEG 13
SEG 14
SEG 15
NC
COM 0
COM 1
COM 2
COM 3
NC
SEG 16
SEG 17
SEG 18
SEG 19
SEG 20
SEG 21
SEG 22
SEG 23
SEG 24
SEG 25
SEG 26
SEG 27
SEG 28
SEG 29
SEG 30
SEG 31
SEG 32
SEG 33
SEG 34
K3
K2
K1
K0
IN 1
IN 0
XC IN
XC OUT
GND
X IN
X OUT
Vss
VDD
C
RESET
CN Vss
NC
A Vss
A VDD
VREF
TP1
R8 10M
R9 220K
X1
C9 18P
C6
C5 18P
R7 1M
CF1
R10 10K
C4 220P
C3 220P
C7 0.1
R6 100K
C2 2.2/50
SW1 RESET
C8 0.01
C1 100/50
Q2
R5 470
R4 47
Q1
R1 1.2
R2 1.2
R3 2.2K
LED1 LED2
X1: 32.768KHz
CF1: 455KHz
Q2 2SB1132
LED1,2 SLR932A-1-A
Q1 2SC2412K
⊕
⊖
66

3.45 RF CONVERTER AND SWITCH SCHEMATIC DIAGRAM

Note:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


RF CONVERTER
Q51, Q52, Q53, Q54
2SC4326 OR 2SC2735
ANT IN
VTR OUT
TV OUT
AUDIO IN ③
+B ④
GND ②
VIDEO IN ①
L51
C52 47P–180P (120P)
L52
L53
C53 0–5P (3P)
R51 180–390 (270)
C51 0–1000P (1000P)
C54 27P–100P (39P)
R52 1.5K
Q51
L54
C55 27P–39P (33P)
R53 1.5K
Q52
L55
C56 27P–39P (33P)
R54 1.5K
Q53
L56
C57 27P–39P (33P)
L57
C58 18P–100P (56P)
R55 1.5K
Q54
C59 0–4P (2P)
C2 560P–2200P (1000P)
R2 1K–56K
R1 68K–100K (82K)
R3 1K–56K (10K)
C1 0–220P (100P)
C11 56P–100P (56P)
T1
R9 0–150 (56)
L1
R6 680–3.9K (2.2K)
R5 2.2K
C14 5P–47P (22P)
C13 18P–56P (39P)
C15 18P–56P (39P)
R8 56–1K (680)
C12 10P–100P (22P)
SW
+B OFF ←→ Hch ←→ Lch
IC1
TA8637BP
Vcc
GND
AMP
AUDIO FREQUENCY MODULATION
MODULATION
OSC
ATT
VIDEO MODULATION
WHITE CLIP
CLAMP
R12 560K–1.5K
C4 0–33P (22P)
R11 3.9K–8.2K (7.5K)
R10 820–2.7K (1K)
C10 0.33
R4 100–3.9K (1.5K)
SAW
C17 0–2200P (1000P)
C3 4700P
C5 0-39P (10P)
C6 0–39P (10P)
C7 0-39P (15P)
C8 1000P
C9 1000P
R7 2.7K

SECTION 4
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

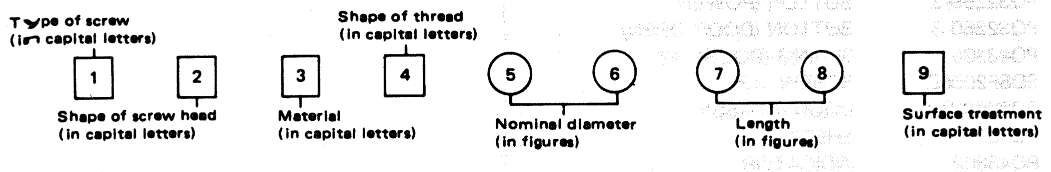
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTE:
[M] indicates mechanical symbol number.

• STANDARD PART NUMBER CODING

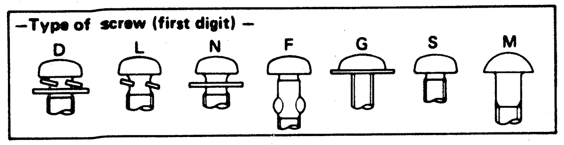
Screw coding

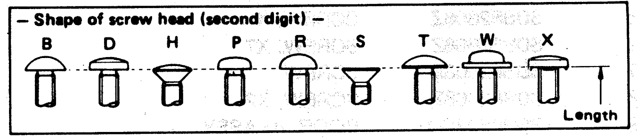
Standard screw part numbers are as follows.


Type of screw (in capital letters)
Shape of thread (in capital letters)
1
2
3
4
5
6
7
8
9
Shape of screw head (in capital letters)
Material (in capital letters)
Nominal diameter (in figures)
Length (in figures)
Surface treatment (in capital letters)

Type of screw (first digit)
- S Normal screws
- D Assembled machine screws (with plain and spring washers)
- L 〃 (with spring washer)
- N 〃 (with plain washer)
- F Feather screws
- G Washer head tapping screws
- M Wood screws

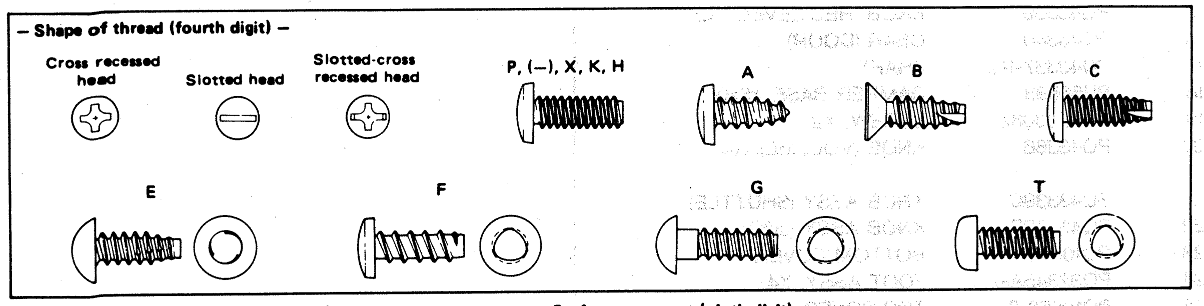
Shape of screw head (second digit)
- B Brazier head
- D Binding head
- H Oval countersunk head
- P Pan head
- R Round head
- S Flat head
- T Truss head
- W Washer head (machine screws)
- X Toothed head


–Type of screw (first digit) –
D
L
N
F
G
S
M


– Shape of screw head (second digit) –
B
D
H
P
R
S
T
W
X
Length

Material (third digit)
- S Steel
- E Stainless steel
- C Cast iron
- U Copper
- B Brass
- P Phosphor bronze
- N Nickel silver
- Y Cast brass
- A Aluminum
- Z Zinc alloy
- K Polycarbonate

Shape of thread (fourth digit)
- P Cross recessed head screws
- (–) Slotted head machine screws
- X Slotted-cross recessed head machine screws
- K Cross recessed head machine screws for precision equipment (type 1)
- H 〃 (type 3)
- A Cross recessed head tapping screws (type 1)
- B 〃 (type 2)
- C 〃 (type 3)
- E Cross recessed head special tapping screws (brand : evertight)
- F 〃 (brand : P-tight)
- T 〃 (brand : taptight)
- G 〃

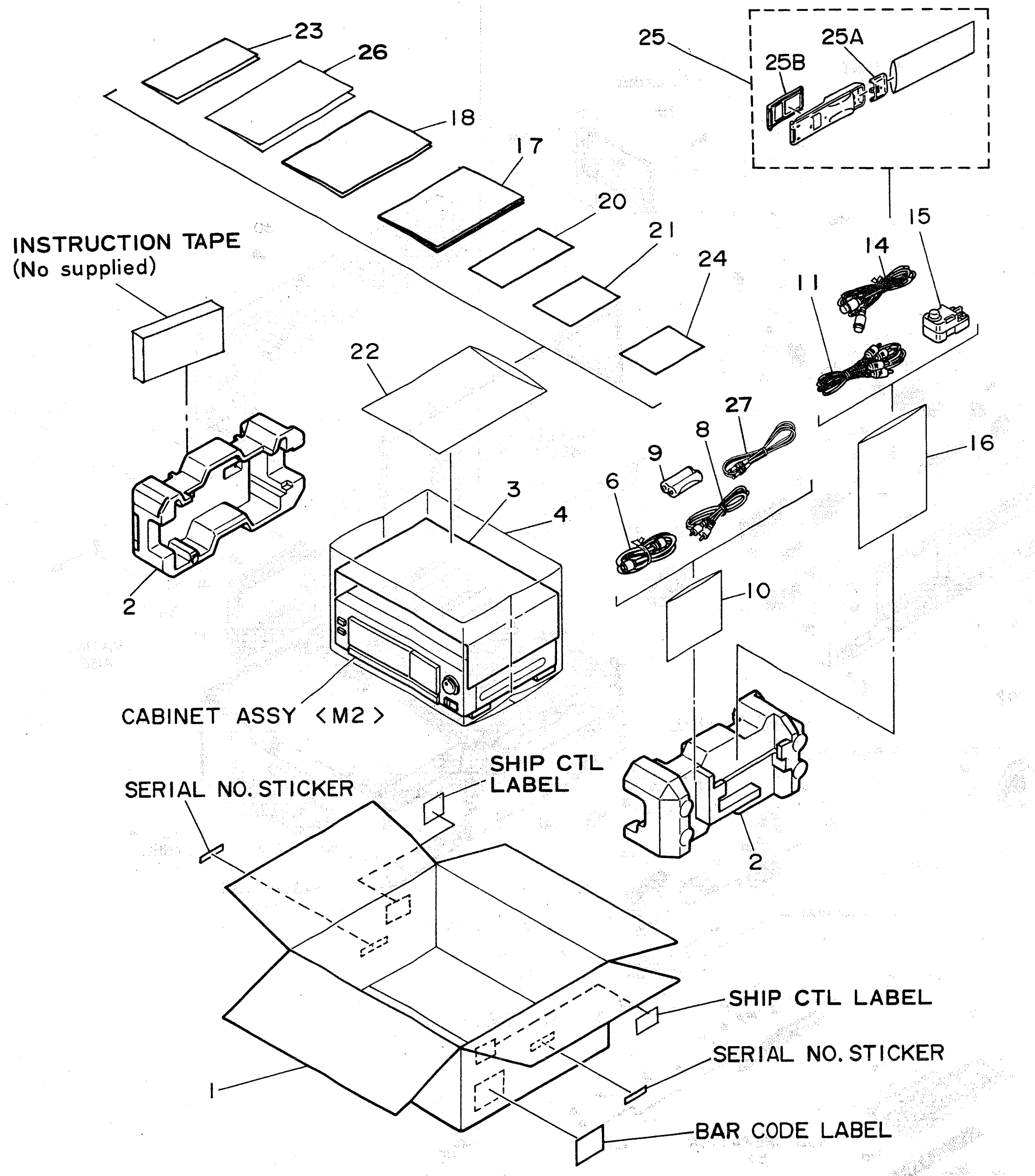

– Shape of thread (fourth digit) –
Cross recessed head
Slotted head
Slotted-cross recessed head
P, (–), X, K, H
A
B
C
E
F
G
T

Nominal diameter (fifth and sixth digits)
The fifth and sixth digits indicate a nominal diameter or dimension. If the dimension exceeds 10 mm, three digits are used. The number indicates a nominal diameter or dimension, given in millimeters, multiplied by ten.

Length (seventh and eighth digits)
The seventh and eighth digits indicate length in millimeters. The preceding figure is zero when the dimension is smaller than 10 mm. For machine screws used in precision equipment whose length is given in units of 0.1 mm, the number indicates ten times the size of their length.

Surface treatment (ninth digit)
- Z Dichromate treatment after galvanizing (MFZn II-C)
- N Nickel plating (MFNi II, MFNi I)
- R Chromium plating (MBCr II, MBCr I)
- G Silver plating (SP4)
- B Black coating after plating
- F Blackening of iron (FB)
- M Blackening after galvanizing
- K Pickling of brass (PF2)
- P Phosphate treatment
- W Uni-chrome plating
- L Coated with transparent paint
- A Colored red after galvanizing (MFZn II-C)
- C Colored blue after galvanizing (MFZn II-C)
- T Colored green after galvanizing (MFZn II-C)
- V Colored purple after galvanizing (MFZn II-C)

4.1 PACKING ASSEMBLY <M1>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26
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25A
25B
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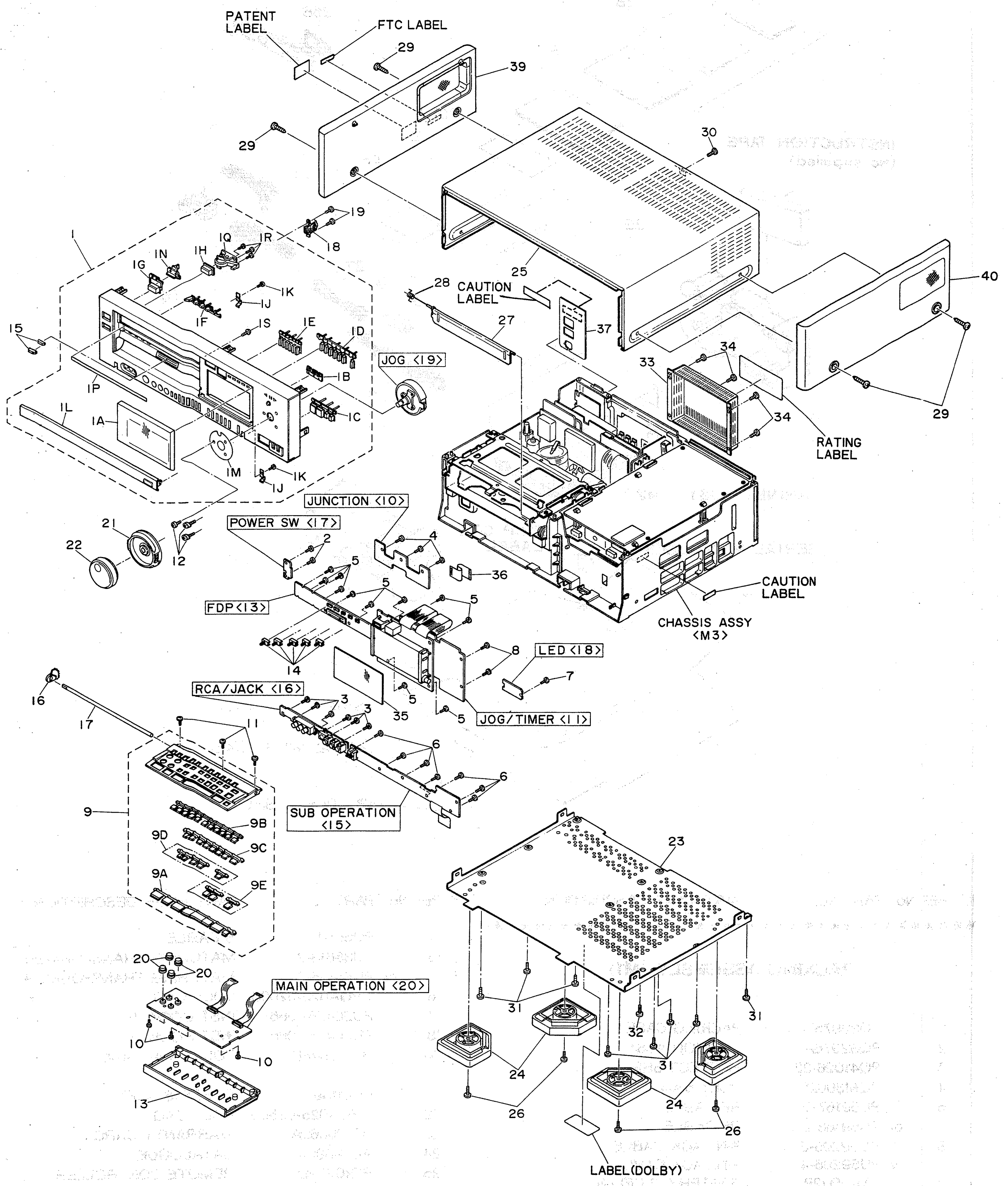
14
11
INSTRUCTION TAPE
(No supplied)
22
27
8
9
6
16
3
4
2
10
CABINET ASSY <M2>
SERIAL NO. STICKER
SHIP CTL LABEL
2
SHIP CTL LABEL
SERIAL NO. STICKER
1
BAR CODE LABEL

✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱

1. PACKING ASSEMBLY ⟨M1⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ32975-1-2	PACKING CASE
	2	PQ32976A-1	CUSHION ASSY
	3	PQ41026-23	PROTECT SHEET
	4	PQM30021-73	POLY BAG
	6	PU59167-2	RF CABLE
	or	PU59168-2	RF CABLE
	8	PU59205-3	PIN JACK CABLE
	or	PU59205-4	PIN JACK CABLE
	9	UM-3DJ2P	BATTERY, 2 CELLS
	10	QPGA020-02005	POLY BAG
	11	PU56142-3	PIN CORD ASSY
	14	PU60111	S CABLE
⚠	15	PU35613-2	MATCHING TRANSFORMER
⚠	or	PU59135-2	MATCHING TRANSFORMER
	16	QPGA020-02005	POLY BAG
⚠	17	PU30425-1065	INST BOOK (1)
⚠	18	PU30425-1066	INST BOOK (2)
	20	BT-20046D	TOLL FREE CARD
	21	PU61139	SHEET (S SOFT)
	22	QPGA025-03505	POLY BAG
	23	BT-20062A	WARRANTY CARD
	24	ACU-8004	CATALOGUE
⚠	25	PQ10779Q	REMOTE CONTROLLER
	25A	PQ32715	BATTERY CAP
	25B	PQ32818A	DOOR ASSY
⚠	26	PU30425-1091	INST BOOK (3)
	27	PU60926	PIN CORD

4.2 CABINET ASSEMBLY <M2>


PATENT LABEL
FTC LABEL
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IQ
IR
IN
IH
IG
IK
IJ
IF
IS
IE
ID
25
28
CAUTION LABEL
27
37
40
15
IP
IL
IA
IM
IB
IC
IK
IJ
JOG <19>
33
34
34
29
RATING LABEL
JUNCTION <10>
POWER SW <17>
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FDP <13>
CAUTION LABEL
CHASSIS ASSY <M3>
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LED <18>
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RCA/JACK <16>
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JOG/TIMER <11>
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9B
9D
9C
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9E
SUB OPERATION <15>
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MAIN OPERATION <20>
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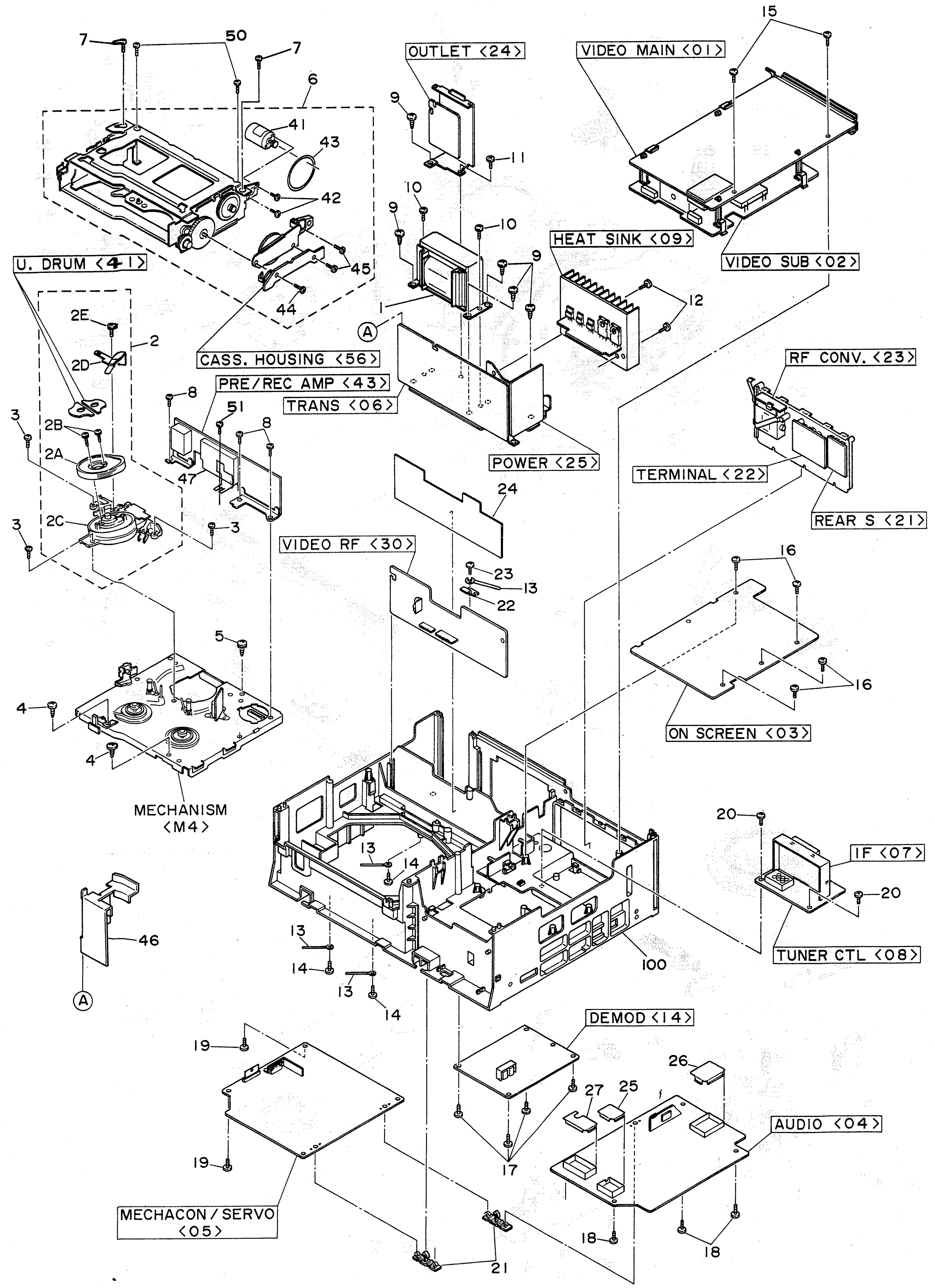
32
31
31
10
10
24
24
26
26
13
LABEL(DOLBY)

2. CABINET ASSEMBLY 〈M2〉

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ10648C-3	FRONT PANEL ASSY
	1A	PQ32258-2-3	DISPLAY WINDOW
	1B	PQ43329	INDICATOR
	1C	PQ32263-2	BUTTON (CH)
	1D	PQ32266-2	BUTTON (TIMER)
	1E	PQ32265-2	BUTTON (PRESET)
	1F	PQ32261	BUTTON (1)
	1G	PQ32259-3	BUTTON (POWER)
	1H	PQ32260-3	BUTTON (DOOR OPEN)
	1J	PQ43335	SPRING (DOOR), X2
	1K	SDSF2005Z	SCREW, X2
	1L	PQ20601C-1	DOOR (C) ASSY
	1M	PQ43716	SHEET
	1N	PQ43362	INDICATOR
	1P	PQ32299	PLATE (A)
	1Q	PU60587	LEVER UNIT ASSY
	1R	SDSF2005Z	SCREW, X3
	1S	SDSF2606Z	SCREW
	2	SDSF2608Z	SCREW, X2
	3	SDSF2608Z	SCREW, X6
	4	SDSF2608Z	SCREW, X3
	5	SDSF2608Z	SCREW, X11
	6	SDSF2608Z	SCREW, X7
	7	SDSF2608Z	SCREW
	8	SDSF2608Z	SCREW, X2
	9	PQ20604C-1	DOOR (A) ASSY
	9A	PQ20605-3	BUTTON (DOOR OPEN)
	9B	PQ32270	BUTTON (DOOR. A)
	9C	PQ32271	BUTTON1 (DOOR. B)
	9D	PQ32301	BUTTON2 (DOOR. B)
	9E	PQ32269-2	BUTTON
	10	SDSF2005Z	SCREW, X3
	11	SDSF2608M	SCREW, X3
	12	SDSF2608Z	SCREW, X3
	13	PQ20598C	DOOR (B) ASSY
	14	PQ43328	KNOB (SLIDE), X5
	15	PQ43300	KNOB (REC LEVEL), X2
	16	PQ43340	GEAR (DOOR)
	17	PQ43337-1-2	SHAFT
	18	PU60588	DAMPER BASE ASSY
	19	SDSF2608Z	SCREW, X2
	20	PQ43366	KNOB (VOLUME), X4
	21	PQ43339C	KNOB ASSY (SHUTTLE)
	22	PQ43379B	KNOB ASSY (JOG)
⚠	23	PQ10658	BOTTOM COVER
	24	PQ32345A-1	FOOT ASSY, X4
⚠	25	PQ10659-3	TOP COVER
	26	SDST3008Z	SCREW, X4
	27	PQ32147-4-4	CASSETTE HOUSING DOOR
	28	PQ43260	TORSION SPRING
	29	SDSA4020M	SCREW, X4
	30	SDSF3010M	SCREW
	31	SDSF3008Z	SCREW, X8
⚠	32	SDST3008C	SCREW
	33	PQ32335	COVER
	34	SDSF3008M	SCREW, X4
	35	PQ43643-2	SHEET (PINK)
	36	PU60712	FFC WIRE
⚠	37	PQ32604-2	BRACKET SHEET
	39	PQ20866A	SIDE WOOD ASSY (L)
	40	PQ20867A	SIDE WOOD ASSY (R)

4.3 CHASSIS ASSEMBLY <M3>



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VIDEO MAIN <01>
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HEAT SINK <09>
VIDEO SUB <02>
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U. DRUM <41>
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2B
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2C
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CASS. HOUSING <56>
PRE/REC AMP <43>
TRANS <06>
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POWER <25>
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TERMINAL <22>
REAR S <21>
VIDEO RF <30>
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ON SCREEN <03>
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MECHANISM <M4>
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IF <07>
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TUNER CTL <08>
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100
46
Ⓐ
DEMOD <14>
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27
25
AUDIO <04>
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17
MECHACON / SERVO <05>
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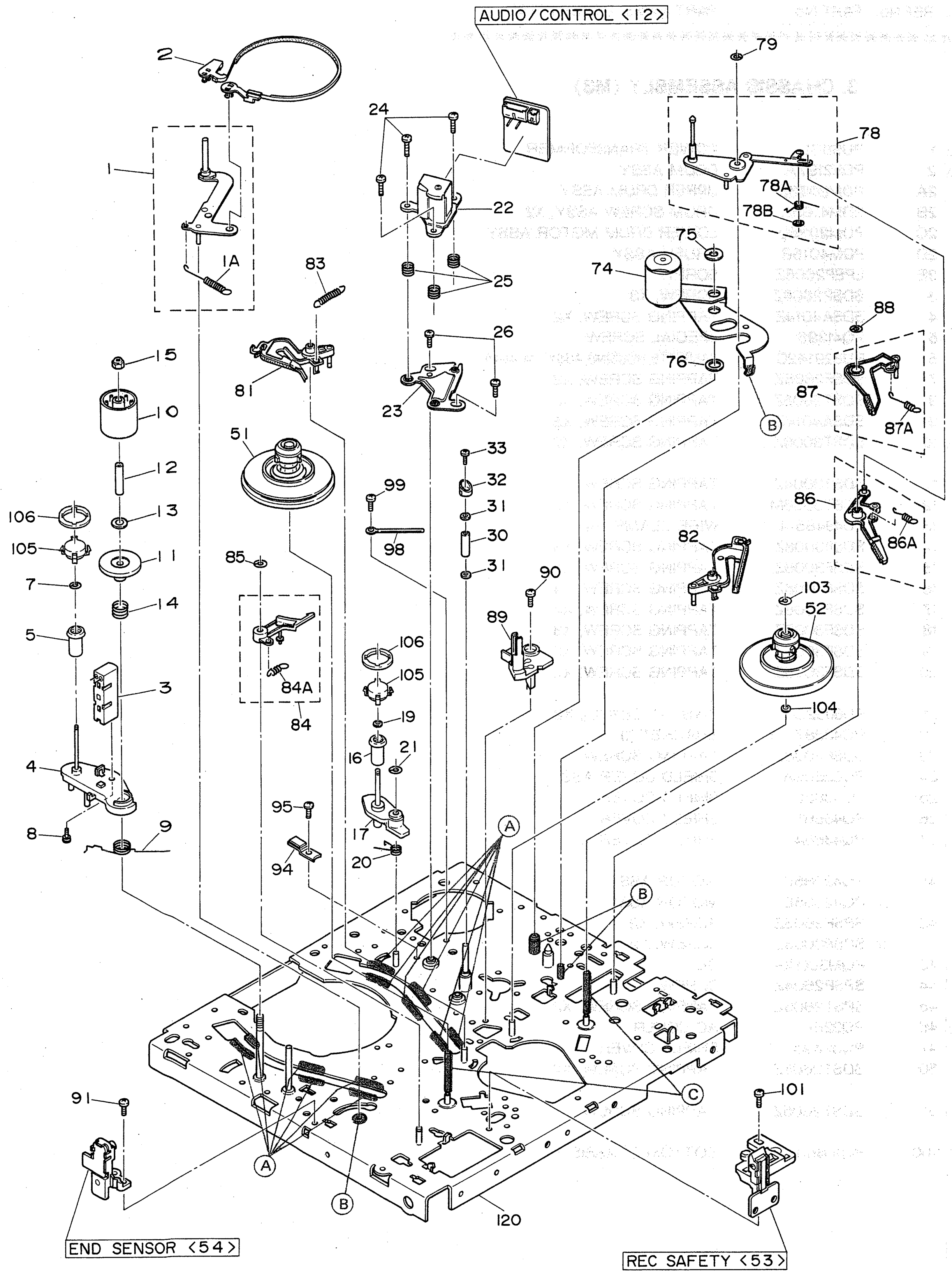
18
21

✱✱※✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱✱

3. CHASSIS ASSEMBLY 〈M3〉

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	PU61131	POWER TRANSFORMER
⚠	2	PDV2197A	DRUM ASSY
	2A	PDM2083E	UPPER DRUM ASSY
	2B	PDM4165A	DRUM SCREW ASSY, X2
	2C	PDM2035U	LOWER DRUM MOTOR ASSY
	2D	PDM4015B	BRUSH ASSY
	2E	LPSP2606Z	SCREW
	3	SDSP2608Z	SCREW, X3
	4	SDSA4014Z	TAPPING SCREW, X2
	5	PQ41396	SPECIAL SCREW
	6	PUS29142C	CASSETTE HOUSING ASSY, INC41-45
	7	SDSF2608Z	TAPPING SCREW, X2
	8	SDST2605Z	TAPPING SCREW, X3
	9	SDSA4014Z	TAPPING SCREW, X5
⚠	10	SDST3006Z	TAPPING SCREW, X2
	11	SDST3004Z	TAPPING SCREW
	12	SDST3006M	TAPPING SCREW, X2
	13	PU49485-4	WIRE CLAMP, X4
	14	SDSF3008Z	TAPPING SCREW, X3
	15	SDSF3008Z	TAPPING SCREW, X2
	16	SDSF3008Z	TAPPING SCREW, X4
	17	SDSF3008Z	TAPPING SCREW, X4
	18	SDSF3008Z	TAPPING SCREW, X3
	19	SDSF3008Z	TAPPING SCREW, X2
	20	SDSF3008Z	TAPPING SCREW, X2
	21	PU60523	PWB HOLDER (C), X2
	22	PQ43387-1-1	BRACKET (1)
	23	SDSF3008Z	TAPPING SCREW
	24	PQ32509A	SHIELD COVER ASSY
	25	PQ43658	SHIELD COVER
	26	PQ43661	SHIELD COVER
	27	PQ43664	SHIELD COVER
	41	PQ42385C	MOTOR ASSY
	or	PQ42385E	MOTOR ASSY
	42	SPSP2603Z	SCREW, X2
	or	SPSP3003Z	SCREW, X2
	43	PQM30003-19	BELT
	44	SPSP2604Z	SCREW
	45	SPST2605Z	TAPPING SCREW, X2
⚠	46	PQ32611	AC COVER
	47	PQ32498-1-1	SHIELD COVER
	50	SDST2605Z	TAPPING SCREW, X2
	51	SDST2605Z	TAPPING SCREW
⚠	100	PQ10660	BOTTOM CHASSIS

4.4 MECHANISM ASSEMBLY (1) <M4>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78B
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87A
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86A
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89
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106
105
84A
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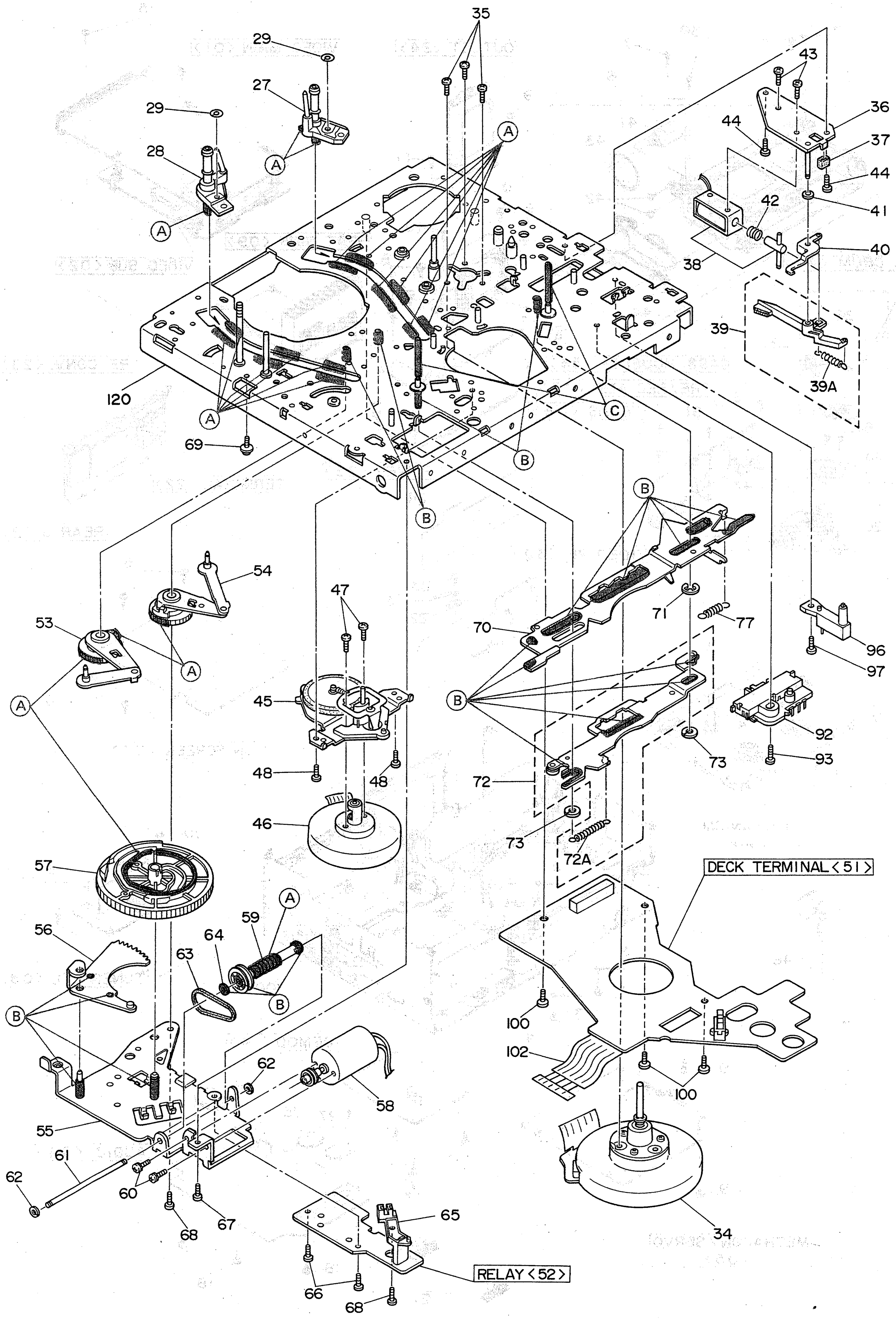
17
20
A
94
B
C
91
101
120
END SENSOR <54>
REC SAFETY <53>

Category	Part number	MARK
Grease	MOS2-C (Black)	Ⓐ
Grease	KANTO-G-31KAV (Blue)	Ⓑ
Oil	YTU94027	Ⓒ

NOTE: The section marked in red (Ⓐ, Ⓑ and Ⓒ) indicate lubrication and greasing areas.

MECHANISM ASSEMBLY (2) <M4>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A
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120
39A
C
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B
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72A
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DECK TERMINAL <51>
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102
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60
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67
65
34
RELAY <52>
66
68

4. MECHANISM ASSEMBLY ⟨M4⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ43415A	TENSION ARM ASSY
	1A	PQ43419	SPRING
	2	PQ43422A	TENSION BAND ASSY
	3	PU60646	FULL ERASE HEAD
	4	PQ43299B	HEAD ARM SUB ASSY
	5	PQ43837A	ROLLER ASS'Y
	7	PQM30017-25	SLIT WASHER
	8	LPSP2004Z	SCREW
	9	PQ41954-1-1	TORSION SPRING
	10	PQ41955	IMPEDANCE ROLLER
	11	PQ41957	LOWER FLANGE
	or	PQ42958	LOWER FLANGE
	12	PQ41956	COLLAR
	13	PQM30018-39	SPACER
	or	PQM30018-50	SPACER
	14	PQM30002-124	COMPRESSION SPRING
	15	PQ40353	NYLON NUT
	16	PQ43837A	ROLLER ASSY
	17	PQ43833	ROLLER ARM SUB ASSY
	19	PQM30017-25	SLIT WASHER
	20	PQ43476	TORSION SPRING
	21	PQM30017-8	SLIT WASHER
	22	PU60540	AUDIO/CONTROL HEAD
	23	PQ42984-2	HEAD BASE
	24	PQ43687A	SCREW, X3
	25	PU30080-49	SPRING, X3
	26	SDSP2606Z	SCREW, X2
	27	PU60647	POLE BASE ASSY (TAKE-UP)
	28	PU60649	POLE BASE ASSY (SUPPLY)
	29	PQM30017-5	SLIT WASHER, X2
	30	PU53629-2	TAPE GUIDE
	31	PQ40268-2	GUIDE FLANGE, X2
	32	PQ42999-2-1	GUIDE POLE CAP
	33	SDSP2006Z	SCREW
⚠	34	PU60549	CAPSTAN MOTOR
	35	SPSP2605N	SCREW, X3
	36	PQ43424A	SOLENOID BASE ASSY
	37	PQ40747	STOPPER
⚠	38	PU60537	SOLENOID
	39	PQ43466A	BRAKE ASSY
	39A	PQM30001-212	TENSION SPRING
	40	PQ43426	BRAKE LEVER
	41	Q03093-826	WASHER
	42	PQM30002-191	COMP. SPRING
	43	SPSP2603Z	SCREW, X2
	44	SPST2606Z	TAPPING SCREW, X2
	45	PU60559	IDLER UNIT
⚠	46	PU58636W	REEL MOTOR
	47	LPSP2604Z	SCREW, X2
	48	SPST2606Z	TAPPING SCREW, X2
	51	PU60538-1-1	REEL DISK (SUPPLY)
	52	PU60539-1-2	REEL DISK (TAKE-UP)
	53	PQ41979A-5	LOADING ARM ASSY (SUPLLY)
	54	PQ43462A	LOADING ARM ASSY (TAKE-UP)
	55	PQ41992A-2	CAM BRACKET SUB ASSY
	56	PQ41994A-3	ARM GEAR ASSY
	57	PQ10673	CONTROL CAM
⚠	58	PQ41996C	MODE MOTOR ASSY
	59	PQ43427A	WORM ASSY
	60	LPSP2604Z	SCREW, X2
	61	PQ42003	WORM SHAFT
	62	PQM30017-5	SLIT WASHER, X2
	63	PQM30003-20	BELT
	64	PQM30018-22	SPACER
	65	PU61088	REEL SENSOR (SUPPLY)
	66	SPST2606Z	TAPPING SCREW, X2
	67	SPST2606Z	TAPPING SCREW
	68	LPSP2604Z	SCREW, X2
	69	PQ43648	FLANGE SCREW
	70	PQ43429A	CONTROL PLATE ASSY
	71	REE4000	E-RING
	72	PQ43430A	SLIDE PLATE ASSY
	72A	PQ43432	TENSION SPRING
	73	PQM30017-28	SLIT WASHER, X2
	74	PQ42006C	PINCH ROLLER ARM ASSY
	75	PQM30017-28	SLIT WASHER
	76	Q03093-833	WASHER
	77	PQM30001-229	TENSION SPRING
	78	PQ43436B	REVERSE ARM ASSY
	78A	PQ43442-2	TORSION SPRING
	78B	PQM30017-25	SLIT WASHER
	79	PQM30017-8	SLIT WASHER
	81	PQ43434A	MAIN BRAKE SUB ASSY (SUPPLY)
	82	PQ43435A	MAIN BRAKE SUB ASSY (TAKE-UP)
	83	PQM30001-216	TENSION SPRING
	84	PQ43617A-3	SUPPLY BRAKE ASSY
	84A	PQ43618-2	TENSION SPRING
	85	PQM30017-8	SLIT WASHER
	86	PQ43444B	TENSION BRAKE ASSY
	86A	PQ43446	TENSION SPRING
	87	PQ43447A	SUB BRAKE ASSY
	87A	PQ43446-2	SPRING
	88	PQM30017-8	SLIT WASHER
	89	PU59925-1-1	LED HOLDER (INCL.LED)
	90	SPST2606Z	TAPPING SCREW
	91	SPST2606Z	TAPPING SCREW
	92	PU60541	SLIDE SWITCH
	93	SDSP2610Z	SCREW
	94	PU60543	DEW SENSOR
	95	SPST2606Z	TAPPING SCREW
	96	PU59919-1-1	CASSETTE SWITCH
	97	SDST2608Z	TAPPING SCREW
	98	PU49485-4	WIRE CLAMP
	99	SPST2606Z	TAPPING SCREW
	100	SDSP2606Z	SCREW, X3
	101	SDST2606Z	TAPPING SCREW
	102	PW30110-26DD885	PARALLEL WIRE
	103	PQM30017-5	SLIT WASHER
	104	PQM30018-54	SPACER
	105	PQ32776	CAP, X2
	106	PQ43836	RING, X2
	120	PQ20636A-3	MAIN DECK ASSEMBLY

SECTION 5
ELECTRICAL PARTS LIST

SAFETY PRECAUTION
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

NOTES: ●< 2 digits > indicates circuit board symbol number.
●"X" indicates quantity per set.

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

5. VIDEO MAIN/MAIN SUB BOARD ASSEMBLY 〈01〉

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	PB10126B	VIDEO MAIN/SUB BOARD ASSY
	HD1	PU60522	PWB HOLDER (B), X2
	HN1	PU58018-1-2	PWB HINGE, X2
⚠	J1	PU60589	JACK BOARD ASS'Y
	SCW1	SDSF3008Z	TAPPING SCREW, X2
	SLD1	PQ43677	SHIELD CASE
	SLD2	PQ43678	SHIELD COVER
	SLD3	PQ43679-1-2	SHIELD PLATE
	SPC1	PU60010	SPACER
	TB1	PQ32313-2	BOARD(JACK)
	TP20	PU57545	TEST PIN, X14

— VIDEO MAIN BOARD ASSEMBLY —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA1	PB10126B1	VIDEO MAIN BOARD ASSY
	IC101	MN3801	IC
	IC201	PB20202A	YNR MODULE
	IC301	PU22198D	Y MODULE
	IC302	BU4066B	IC
	IC401	M51647SP	IC
	IC402	NJM2233AD	IC
	IC501	LA7220	IC
	IC502	NJM2233AD	IC
	IC601	PB20200A	Y MODULE
	IC602	VC2071	IC
	IC603	NJM2233AD	IC
	IC702	LA7220	IC
	IC703	LA7220	IC
	IC704	LA7220	IC
	IC801	VC2047	IC
	IC802	BU4030B	IC

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	IC803	BU4081B	IC
	IC901	AN3211K	IC
	IC902	NJM2234D	IC
	IC903	NJM2234D	IC
	Q1	2SA933S(RS)	TRANSISTOR
	Q2	2SA933S(RS)	TRANSISTOR
	Q3	DTA124ES	TRANSISTOR
	Q4	2SC1740S(QRS)	TRANSISTOR
	Q5	2SC1740S(QRS)	TRANSISTOR
	Q6	DTA124ES	TRANSISTOR
	Q7	DTA144WS	TRANSISTOR
	Q8	DTC144ES	TRANSISTOR
	Q9	DTC144WS	TRANSISTOR
	Q10	2SA933S(RS)	TRANSISTOR
	Q11	2SC1740S(QRS)	TRANSISTOR
	Q101	2SA933S(RS)	TRANSISTOR
	Q102	2SC1740S(QRS)	TRANSISTOR
	Q103	2SC3311A	TRANSISTOR
	Q104	2SC3311A	TRANSISTOR
	Q301	DTC144ES	TRANSISTOR
	Q302	2SC1740S(QRS)	TRANSISTOR
	Q303	DTC144WS	TRANSISTOR
	Q304	DTC144WS	TRANSISTOR
	Q305	2SC1740S(QRS)	TRANSISTOR
	Q306	2SC1740S(QRS)	TRANSISTOR
	Q309	DTC144ES	TRANSISTOR
	Q310	2SA933S(RS)	TRANSISTOR
	Q311	DTC144ES	TRANSISTOR
	Q312	DTC144ES	TRANSISTOR
	Q313	DTC144ES	TRANSISTOR
	Q401	DTC144ES	TRANSISTOR
	Q402	2SA933S(RS)	TRANSISTOR
	Q406	2SC1740S(QRS)	TRANSISTOR
	Q407	2SC1740S(QRS)	TRANSISTOR
	Q408	DTC144ES	TRANSISTOR
	Q409	DTC144WS	TRANSISTOR
	Q410	2SB1030R, S	TRANSISTOR
	Q411	2SB1030R, S	TRANSISTOR
	Q412	2SB1030R, S	TRANSISTOR
	Q413	2SB1030R, S	TRANSISTOR
	Q414	2SB1030R, S	TRANSISTOR
	Q415	2SA933S(RS)	TRANSISTOR
	Q416	2SA933S(RS)	TRANSISTOR
	Q501	2SC1740S(QRS)	TRANSISTOR
	Q502	2SC1740S(QRS)	TRANSISTOR
	Q503	2SC1740S(QRS)	TRANSISTOR
	Q504	2SC1740S(QRS)	TRANSISTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	Q505	2SC1740S(QRS)	TRANSISTOR
	Q506	2SC1740S(QRS)	TRANSISTOR
	Q507	DTC144WS	TRANSISTOR
	Q509	2SC1740S(QRS)	TRANSISTOR
	Q601	DTC144WS	TRANSISTOR
	Q602	2SC1740S(QRS)	TRANSISTOR
	Q603	2SC1740S(QRS)	TRANSISTOR
	Q605	DTC144WS	TRANSISTOR
	Q606	DTC144WS	TRANSISTOR
	Q607	DTA124ES	TRANSISTOR
	Q608	DTC144ES	TRANSISTOR
	Q701	2SA933S(RS)	TRANSISTOR
	Q702	2SA933S(RS)	TRANSISTOR
	Q703	2SC1740S(QRS)	TRANSISTOR
	Q704	2SC1740S(QRS)	TRANSISTOR
	Q705	2SC1740S(QRS)	TRANSISTOR
	Q706	2SC1740S(QRS)	TRANSISTOR
	Q707	2SC1740S(QRS)	TRANSISTOR
	Q708	2SC1740S(QRS)	TRANSISTOR
	Q709	2SC1740S(QRS)	TRANSISTOR
	Q710	2SC1740S(QRS)	TRANSISTOR
⚠	Q801	2SA854S(R)	TRANSISTOR
	Q802	2SA854S(R)	TRANSISTOR
	Q803	DTC124ES	TRANSISTOR
	Q804	DTC124ES	TRANSISTOR
	Q805	2SA854S(R)	TRANSISTOR
	Q806	DTC124ES	TRANSISTOR
	Q901	DTC144WS	TRANSISTOR
	Q902	2SA933S(RS)	TRANSISTOR
		or 2SA1309R, S	TRANSISTOR
	Q903	DTA144ES	TRANSISTOR
	D1	1SS133	DIODE
		or MA165	DIODE
	D2	1SS133	DIODE
		or MA165	DIODE
	D3	1SS133	DIODE
		or MA165	DIODE
	D4	1SS133	DIODE
		or MA165	DIODE
	D5	1SS133	DIODE
		or MA165	DIODE
	D6	1SS133	DIODE
		or MA165	DIODE
	D102	1SS133	DIODE
		or MA165	DIODE
	D201	1SS133	DIODE
		or MA165	DIODE
	D202	1SS133	DIODE
		or MA165	DIODE
	D203	1SS133	DIODE
		or MA165	DIODE
	D204	1SS133	DIODE
		or MA165	DIODE
	D301	1SS133	DIODE
		or MA165	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	D302	1SS133	DIODE
		or MA165	DIODE
	D303	1SS133	DIODE
		or MA165	DIODE
	D304	1SS133	DIODE
		or MA165	DIODE
	D305	1SS133	DIODE
		or MA165	DIODE
	D402	1SS133	DIODE
		or MA165	DIODE
	D403	1SS133	DIODE
		or MA165	DIODE
	D404	1SS133	DIODE
		or MA165	DIODE
	D406	1SS133	DIODE
		or MA165	DIODE
	D407	1SS133	DIODE
		or MA165	DIODE
	D408	1SS133	DIODE
		or MA165	DIODE
	D501	1SS133	DIODE
		or MA165	DIODE
	D502	1SS133	DIODE
		or MA165	DIODE
	D504	1SS133	DIODE
		or MA165	DIODE
	D505	OA90	DIODE
	D506	OA90	DIODE
	D508	1SS133	DIODE
		or MA165	DIODE
	D604	1SS133	DIODE
		or MA165	DIODE
	D605	1SS133	DIODE
		or MA165	DIODE
	D607	1SS133	DIODE
		or MA165	DIODE
	D608	1SS133	DIODE
		or MA165	DIODE
	D609	1SS133	DIODE
		or MA165	DIODE
	D610	1SS133	DIODE
		or MA165	DIODE
	D701	1SS133	DIODE
		or MA165	DIODE
	D702	1SS133	DIODE
		or MA165	DIODE
	D703	1SS133	DIODE
		or MA165	DIODE
	D704	1SS133	DIODE
		or MA165	DIODE
	D705	1SS133	DIODE
		or MA165	DIODE
	D801	1SS133	DIODE
		or MA165	DIODE
	D802	1SS133	DIODE
		or MA165	DIODE
	D803	1SS133	DIODE
		or MA165	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	D804	1SS133	DIODE	
	or	MA165	DIODE	
	D805	1SS133	DIODE	
	or	MA165	DIODE	
	D806	1SS133	DIODE	
	or	MA165	DIODE	
	D901	1SS133	DIODE	
	or	MA165	DIODE	
	D902	1SS133	DIODE	
	or	MA165	DIODE	
	D903	1SS133	DIODE	
	or	MA165	DIODE	
	D904	1SS133	DIODE	
	or	MA165	DIODE	
	D905	1SS133	DIODE	
	or	MA165	DIODE	
	D906	1SS133	DIODE	
	or	MA165	DIODE	
	D907	1SS133	DIODE	
	or	MA165	DIODE	
	D908	1SS133	DIODE	
	or	MA165	DIODE	
	D909	1SS133	DIODE	
	or	MA165	DIODE	
	D910	1SS133	DIODE	
	or	MA165	DIODE	
	D911	1SS133	DIODE	
	or	MA165	DIODE	
	R1	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R2	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R3	QRD161J-391	RESISTOR	390Ω, 1/6W
	R4	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R5	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R6	QRD161J-331	RESISTOR	330Ω, 1/6W
	R7	QRD161J-681	RESISTOR	680Ω, 1/6W
	R8	QVZ3518-102AZ	V RESISTOR, REC FM LEV (N CH-1)	1KΩ
	or	QVZ3523-102AZ	V RESISTOR	1KΩ
	R9	QRD161J-391	RESISTOR	390Ω, 1/6W
	R10	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R11	QRD161J-273	RESISTOR	27KΩ, 1/6W
	R12	QRD161J-221	RESISTOR	220Ω, 1/6W
	R13	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R14	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R15	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R16	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R17	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R18	QRD161J-471	RESISTOR	470Ω, 1/6W
	R19	QVZ3518-102AZ	V RESISTOR, REC FM LEV (S CH-1)	1KΩ
	or	QVZ3523-102AZ	V RESISTOR	1KΩ
	R20	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R21	QRD161J-331	RESISTOR	330Ω, 1/6W
	R22	QRD161J-131	RESISTOR	130Ω, 1/6W
	R23	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R24	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R25	QVZ3518-222AZ	V RESISTOR, REC FM LEV (S CH-2)	2.2KΩ
	or	QVZ3523-222AZ	V RESISTOR	2.2KΩ
	R26	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R27	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R28	QRD161J-122	RESISTOR	1.2KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R101	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R102	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R103	QVZ3518-472AZ	V RESISTOR, CCD BIAS	4.7KΩ
	or	QVZ3523-472AZ	V RESISTOR	4.7KΩ
	R104	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R105	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R106	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R107	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R108	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R109	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R110	QVZ3518-102AZ	V RESISTOR, YNR NC BAL	1KΩ
	or	QVZ3523-102AZ	V RESISTOR	1KΩ
	R111	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R112	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R113	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R114	QRD161J-151	RESISTOR	150Ω, 1/6W
	R115	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R201	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R301	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R302	QRD161J-394	RESISTOR	390KΩ, 1/6W
	R303	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R304	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R305	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R306	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R307	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R308	QVZ3518-473AZ	V RESISTOR, PB Y LEVEL (N-MODE)	47KΩ
	or	QVZ3523-473AZ	V RESISTOR	47KΩ
	R309	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R310	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R311	QRD161J-273	RESISTOR	27KΩ, 1/6W
	R312	QRD161J-681	RESISTOR	680Ω, 1/6W
	R314	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R315	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R316	QRD161J-821	RESISTOR	820Ω, 1/6W
	R318	QVZ3518-104AZ	V RESISTOR, E-E/PB DC OFF SET	100KΩ
	or	QVZ3523-104AZ	V RESISTOR	100KΩ
	R319	QRD161J-824	RESISTOR	820KΩ, 1/6W
	R321	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R322	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R323	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R325	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R326	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R327	QRD161J-331	RESISTOR	330Ω, 1/6W
	R328	QRD161J-274	RESISTOR	270KΩ, 1/6W
	R330	QRD161J-184	RESISTOR	180KΩ, 1/6W
	R407	QRD161J-221	RESISTOR	220Ω, 1/6W
	R408	QRD161J-681	RESISTOR	680Ω, 1/6W
	R409	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R410	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R412	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R413	QRD161J-911	RESISTOR	910Ω, 1/6W
	R414	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R415	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R416	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R417	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R418	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R419	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R420	QRD161J-273	RESISTOR	27KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R421	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R422	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R424	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R427	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R428	QRD161J-821	RESISTOR	820Ω, 1/6W
	R429	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R430	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R431	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R432	QRD123J-471S	RESISTOR	470Ω, 1/2W
	R433	QRD161J-750	RESISTOR	75Ω, 1/6W
	R434	QRD123J-331S	RESISTOR	330Ω, 1/2W
	R435	QRD161J-750	RESISTOR	75Ω, 1/6W
	R436	QRD123J-331SX	RESISTOR	330Ω, 1/2W
	R437	QRD161J-750	RESISTOR	75Ω, 1/6W
	R438	QRD161J-750	RESISTOR	75Ω, 1/6W
	R439	QRD123J-391S	RESISTOR	390Ω, 1/2W
	R440	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R441	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R442	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R443	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R445	QRD161J-561	RESISTOR	560Ω, 1/6W
	R446	QRD161J-561	RESISTOR	560Ω, 1/6W
	R447	QRD161J-561	RESISTOR	560Ω, 1/6W
	R448	QRD161J-561	RESISTOR	560Ω, 1/6W
	R449	QRD161J-822	RESISTOR	8.2KΩ, 1/6W
	R501	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R504	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R505	QRD161J-432	RESISTOR	4.3KΩ, 1/6W
	R506	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R507	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R508	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R509	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R510	QRD161J-821	RESISTOR	820Ω, 1/6W
	R511	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R512	QRD161J-681	RESISTOR	680Ω, 1/6W
	R513	QRD161J-561	RESISTOR	560Ω, 1/6W
	R514	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R515	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R516	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R517	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R518	QRD161J-821	RESISTOR	820Ω, 1/6W
	R519	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R520	QRD161J-822	RESISTOR	8.2KΩ, 1/6W
	R521	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R522	QRD161J-821	RESISTOR	820Ω, 1/6W
	R523	QRD161J-330	RESISTOR	33Ω, 1/6W
	R524	QRD161J-330	RESISTOR	33Ω, 1/6W
	R525	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R526	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R527	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R601	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R602	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R603	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R604	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R605	QRD161J-821	RESISTOR	820Ω, 1/6W
	R606	QRD161J-822	RESISTOR	8.2KΩ, 1/6W
	R607	QRD161J-272	RESISTOR	2.7KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R608	QRD161J-822	RESISTOR	8.2KΩ, 1/6W
	R609	QVZ3518-102AZ	V RESISTOR, PB Y EDIT LEVEL	1KΩ
	or	QVZ3523-102AZ	V RESISTOR	1KΩ
	R612	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R613	QRD161J-242	RESISTOR	2.4KΩ, 1/6W
	R614	QRD161J-621	RESISTOR	620Ω, 1/6W
	R615	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R616	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R618	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R619	QRD161J-391	RESISTOR	390Ω, 1/6W
	R620	QVZ3518-151AZ	V RESISTOR, PROCES INPUT LEVEL	150Ω
	or	QVZ3523-151AZ	V RESISTOR	150Ω
	R621	QRD161J-241	RESISTOR	240Ω, 1/6W
	R622	QRD161J-100	RESISTOR	10Ω, 1/6W
	R623	QVZ3518-152AZ	V RESISTOR, PB Y LEVEL (S-MODE)	1.5KΩ
	or	QVZ3523-152AZ	V RESISTOR	1.5KΩ
	R624	QRD161J-221	RESISTOR	220Ω, 1/6W
	R625	QRD161J-681	RESISTOR	680Ω, 1/6W
	R626	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R627	QRD161J-471	RESISTOR	470Ω, 1/6W
	R628	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R629	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R630	QRD161J-224	RESISTOR	220KΩ, 1/6W
	R631	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R701	QRD161J-621	RESISTOR	620Ω, 1/6W
	R702	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R703	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R704	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R705	QRD161J-622	RESISTOR	6.2KΩ, 1/6W
	R706	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R707	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R708	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R709	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R710	QRD161J-330	RESISTOR	33Ω, 1/6W
	R711	QRD161J-471	RESISTOR	470Ω, 1/6W
	R712	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R713	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R714	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R715	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R716	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R717	QRD161J-331	RESISTOR	330Ω, 1/6W
	R718	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R719	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R720	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R721	QRD161J-621	RESISTOR	620Ω, 1/6W
	R722	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R723	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R724	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R725	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R726	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R727	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R728	QRD161J-330	RESISTOR	33Ω, 1/6W
	R729	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R730	QRD161J-271	RESISTOR	270Ω, 1/6W
	R731	QRD161J-101	RESISTOR	100Ω, 1/6W
	R732	QRD161J-103	RESISTOR	10KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R733	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R734	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R801	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R802	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R803	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R804	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R805	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R806	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R807	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R808	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R809	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R810	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R811	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R812	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R813	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R901	QRD161J-750	RESISTOR	75Ω, 1/6W
	R902	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R903	QVZ3518-473AZ	V RESISTOR, E-E LEVEL	47KΩ
	or	QVZ3523-473AZ	V RESISTOR	47KΩ
	R904	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R905	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R906	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R907	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R908	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R909	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R910	QRD161J-560	RESISTOR	56Ω, 1/6W
	R911	QRD161J-560	RESISTOR	56Ω, 1/6W
	R912	QRD161J-560	RESISTOR	56Ω, 1/6W
	R913	QRD161J-560	RESISTOR	56Ω, 1/6W
	R915	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R916	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R917	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R918	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R920	QRD161J-471	RESISTOR	470Ω, 1/6W
	C1	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C2	QCSB1HJ-220	CAPACITOR	22PF, 50V
	C3	QCSB1HJ-330	CAPACITOR	33PF, 50V
	C4	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C5	QCBB1HJ-181	CAPACITOR	180PF, 50V
	C6	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C7	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C8	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C9	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C10	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C11	QCSB1HJ-120	CAPACITOR	12PF, 50V
	C12	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C13	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C14	QETC1CM-107	E CAPACITOR	100μF, 16V
	C101	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C102	QEK60JM-476	E CAPACITOR	47μF, 6.3V
	C103	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C104	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C105	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C106	QEK61HM-105	E CAPACITOR	1μF, 50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C107	QEK61HM-105	E CAPACITOR	1μF, 50V
	C108	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C109	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C110	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C111	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C112	QEK61HM-475	E CAPACITOR	4.7μF, 50V
	C113	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C114	QEK60JM-476	E CAPACITOR	47μF, 6.3V
	C115	QFN31HJ-103	M CAPACITOR	0.01μF, 50V
	C116	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C120	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C121	QCSB1HJ-330	CAPACITOR	33PF, 50V
	C201	QETC1AM-226	E CAPACITOR	22μF, 10V
	C202	QETC1AM-226	E CAPACITOR	22μF, 10V
	C203	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C204	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C205	QETC1AM-226	E CAPACITOR	22μF, 10V
	C206	QETC1AM-226	E CAPACITOR	22μF, 10V
	C207	QETC1AM-226	E CAPACITOR	22μF, 10V
	C208	QETC1CM-106	E CAPACITOR	10μF, 16V
	C209	QETC1CM-226	E CAPACITOR	22μF, 16V
	C210	QETC1AM-226	E CAPACITOR	22μF, 10V
	C211	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C213	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C302	QCSB1HJ-120	CAPACITOR	12PF, 50V
	C303	QCSB1HJ-120	CAPACITOR	12PF, 50V
	C304	QETC1HM-335	E CAPACITOR	3.3μF, 50V
	C305	QCSB1HJ-390	CAPACITOR	39PF, 50V
	C306	QCBB1HJ-820	CAPACITOR	82PF, 50V
	C307	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C308	QETC1HM-474	E CAPACITOR	0.47μF, 50V
	C309	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C310	QETC0JM-337	E CAPACITOR	330μF, 6.3V
	C311	QETC0JM-337	E CAPACITOR	330μF, 6.3V
	C312	QCSB1HJ-560	CAPACITOR	56PF, 50V
	C313	QETC1HM-105	E CAPACITOR	1μF, 50V
	C314	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C315	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C316	QCBB1HJ-391	CAPACITOR	390PF, 50V
	C317	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C318	QETB1HM-335	E CAPACITOR	3.3μF, 50V
	C319	QETB1EM-475	E CAPACITOR	4.7μF, 25V
	C320	PU57601-106KC	E CAPACITOR	10μF, 16V
	C321	QETB1EM-335	E CAPACITOR	3.3μF, 25V
	C322	QFN31HJ-563	M CAPACITOR	0.056μF, 50V
	C323	QCSB1HJ-270	CAPACITOR	27PF, 50V
	C324	QCBB1HJ-181	CAPACITOR	180PF, 50V
	C402	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C403	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C404	QETC1CM-106	E CAPACITOR	10μF, 16V
	C405	QETC1CM-226	E CAPACITOR	22μF, 16V
	C406	QFN31HJ-103	M CAPACITOR	0.01μF, 50V
	C407	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C408	QETB1CM-336	E CAPACITOR	33μF, 16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C410	QETB1CM-336	E CAPACITOR	33μF, 16V
	C414	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C415	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C416	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C417	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C419	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C420	QETC1CM-106	E CAPACITOR	10μF, 16V
	C421	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C422	QETC1CM-226	E CAPACITOR	22μF, 16V
	C423	QCSB1HK-8R2	CAPACITOR	8.2PF, 50V
	C424	QETC1CM-226	E CAPACITOR	22μF, 16V
	C425	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C426	QETB1CM-107	E CAPACITOR	100μF, 16V
	C427	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C428	QETB0JM-108	E CAPACITOR	1000μF, 6.3V
	C429	QETC0JM-108	E CAPACITOR	1000μF, 6.3V
	C430	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C431	QETB0JM-108	E CAPACITOR	1000μF, 6.3V
	C432	QEK61CM-106	E CAPACITOR	10μF, 16V
	C433	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C434	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C435	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C436	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C437	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C501	QETC1AM-336	E CAPACITOR	33μF, 10V
	C502	QETC1AM-336	E CAPACITOR	33μF, 10V
	C503	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C504	QER61AM-336	E CAPACITOR	33μF, 10V
	C505	QETC1AM-336	E CAPACITOR	33μF, 10V
	C506	QER61AM-336	E CAPACITOR	33μF, 10V
	C507	QETC1AM-336	E CAPACITOR	33μF, 10V
	C508	QETC1CM-476	E CAPACITOR	47μF, 16V
	C509	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C510	QER51CM-476	E CAPACITOR	47μF, 16V
	C511	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C512	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C513	QETB1CM-107	E CAPACITOR	100μF, 16V
	C514	QCSB1HJ-390	CAPACITOR	39PF, 50V
	C515	QCBB1HJ-820	CAPACITOR	82PF, 50V
	C516	QER61HM-105	E CAPACITOR	1μF, 50V
	C517	QER61EM-475	E CAPACITOR	4.7μF, 25V
	C519	QETC1CM-336	E CAPACITOR	33μF, 16V
	C520	QETB1CM-336	E CAPACITOR	33μF, 16V
	C521	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C522	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C523	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C601	QETC0JM-227	E CAPACITOR	220μF, 6.3V
	C608	QETB0JM-476	E CAPACITOR	47μF, 6.3V
	C609	QCSB1HJ-620	CAPACITOR	62PF, 50V
	C610	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C611	QCSB1HJ-680	CAPACITOR	68PF, 50V
	C612	QCSB1HJ-270	CAPACITOR	27PF, 50V
	C613	QCSB1HJ-560	CAPACITOR	56PF, 50V
	C614	QETC1HM-224	E CAPACITOR	0.22μF, 50V
	C615	QETC0JM-337	E CAPACITOR	330μF, 6.3V
	C619	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C620	QCSB1HJ-560	CAPACITOR	56PF, 50V
	C622	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C623	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C624	QETC1CM-226	E CAPACITOR	22μF, 16V
	C625	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C626	QETB1EM-475	E CAPACITOR	4.7μF, 25V
	C627	QETC1CM-226	E CAPACITOR	22μF, 16V
	C628	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C630	QCSB1HJ-270	CAPACITOR	27PF, 50V
	C631	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C632	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C633	QCBB1HJ-910	CAPACITOR	91PF, 50V
	C634	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C635	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C636	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C637	QEN51CM-226	NP E CAPACITOR	22μF, 16V
	C638	QCBB1HJ-820	CAPACITOR	82PF, 50V
	C639	QETC1HM-105	E CAPACITOR	1μF, 50V
	C640	QETC1HM-335	E CAPACITOR	3.3μF, 50V
	C641	QETC1HM-105	E CAPACITOR	1μF, 50V
	C642	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C643	QETC1AM-336	E CAPACITOR	33μF, 10V
	C644	QETB1AM-336	E CAPACITOR	33μF, 10V
	C645	QETC1CM-476	E CAPACITOR	47μF, 16V
	C646	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C647	QETC1CM-106	E CAPACITOR	10μF, 16V
	C648	QETC1CM-476	E CAPACITOR	47μF, 16V
	C649	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C650	QETC1HM-105	E CAPACITOR	1μF, 50V
	C651	QETC1CM-226	E CAPACITOR	22μF, 16V
	C652	QCSB1HJ-680	CAPACITOR	68PF, 50V
	C713	QETC1AM-336	E CAPACITOR	33μF, 10V
	C714	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C715	QETC1AM-336	E CAPACITOR	33μF, 10V
	C716	QETC1AM-336	E CAPACITOR	33μF, 10V
	C717	QETC1AM-336	E CAPACITOR	33μF, 10V
	C718	QETC1AM-336	E CAPACITOR	33μF, 10V
	C719	QETC1AM-336	E CAPACITOR	33μF, 10V
	C720	QETC1AM-336	E CAPACITOR	33μF, 10V
	C721	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C722	QETC1CM-476	E CAPACITOR	47μF, 16V
	C723	QETC1AM-336	E CAPACITOR	33μF, 10V
	C724	QETC1AM-336	E CAPACITOR	33μF, 10V
	C725	QETC1AM-336	E CAPACITOR	33μF, 10V
	C726	QETC1AM-336	E CAPACITOR	33μF, 10V
	C727	QETC1AM-336	E CAPACITOR	33μF, 10V
	C728	QER51CM-336	E CAPACITOR	33μF, 16V
	C729	QETC1AM-226	E CAPACITOR	22μF, 10V
	C730	QETC1AM-336	E CAPACITOR	33μF, 10V
	C731	QER61AM-336	E CAPACITOR	33μF, 10V
	C732	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C733	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C734	QETC1CM-476	E CAPACITOR	47μF, 16V
	C735	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C736	QETC1HM-105	E CAPACITOR	1μF, 50V
	C737	QETB1EM-475	E CAPACITOR	4.7μF, 25V
	C738	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C739	QETC1EM-476	E CAPACITOR	47μF, 25V
	C740	QETB1CM-476	E CAPACITOR	47μF, 16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C801	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C802	QETC1HM-105	E CAPACITOR	1µF, 50V
	C803	QEN41EM-475	NP E CAPACITOR	4.7µF, 25V
	C804	QETC1EM-475	E CAPACITOR	4.7µF, 25V
	C805	QCBB1HJ-102	CAPACITOR	0.001µF, 50V
	C901	QCXB1CN-222	CAPACITOR	0.0022µF, 16V
	C902	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C903	QETC1CM-106	E CAPACITOR	10µF, 16V
	C904	QETC1EM-475	E CAPACITOR	4.7µF, 25V
	C905	QETC1HM-225	E CAPACITOR	2.2µF, 50V
	C906	QETC1EM-475	E CAPACITOR	4.7µF, 25V
	C907	QCSB1HJ-470	CAPACITOR	47PF, 50V
	C908	QCBB1HJ-561	CAPACITOR	560PF, 50V
	C909	QCBB1HJ-221	CAPACITOR	220PF, 50V
	C910	QETC0JM-227	E CAPACITOR	220µF, 6.3V
	C911	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C912	QETB1HM-224	E CAPACITOR	0.22µF, 50V
	C913	QETC1AM-336	E CAPACITOR	33µF, 10V
	C914	QETC1AM-336	E CAPACITOR	33µF, 10V
	C915	QETC1AM-336	E CAPACITOR	33µF, 10V
	C916	QETC1AM-336	E CAPACITOR	33µF, 10V
	C917	QETC1AM-336	E CAPACITOR	33µF, 10V
	C918	QETC0JM-476	E CAPACITOR	47µF, 6.3V
	C919	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C920	QETC0JM-476	E CAPACITOR	47µF, 6.3V
	C921	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C922	QETC1AM-336	E CAPACITOR	33µF, 10V
	C923	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	L1	PU59152-270J	PEAKING COIL	27µH
	L2	PU59152-330J	PEAKING COIL	33µH
	L3	PU48530-271J	PEAKING COIL	270µH
	L4	PU59152-680J	PEAKING COIL	68µH
	L101	PU48530-101K	PEAKING COIL	100µH
	L102	PU48530-101K	PEAKING COIL	100µH
	L201	PU59152-270J	PEAKING COIL	27µH
	L302	PU48530-471K	PEAKING COIL	470µH
	L303	PU59152-101J	PEAKING COIL	100µH
	L304	PU59152-470J	PEAKING COIL	47µH
	L305	PU48530-101K	PEAKING COIL	100µH
	L306	PU59152-390J	PEAKING COIL	39µH
	L307	PU48530-121K	PEAKING COIL	120µH
	L401	PU59153-101K	PEAKING COIL	100µH
	L402	PU59152-121J	PEAKING COIL	120µH
	L403	PU48530-101K	PEAKING COIL	100µH
	L501	PU48530-101K	PEAKING COIL	100µH
	L502	PU48530-101K	PEAKING COIL	100µH
	L504	PU59153-101K	PEAKING COIL	100µH
	L601	PU59152-270J	PEAKING COIL	27µH
	L603	PU59152-270J	PEAKING COIL	27µH
	L604	PU59152-5R6J	PEAKING COIL	5.6µH
	L605	PU59152-560J	PEAKING COIL	56µH
	L607	PU59152-680J	PEAKING COIL	68µH
	L608	PU59153-101K	PEAKING COIL	100µH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L701	PU48530-101K	PEAKING COIL	100µH
	L702	PU48530-101K	PEAKING COIL	100µH
	L703	PU48530-101K	PEAKING COIL	100µH
	L801	PU48530-101K	PEAKING COIL	100µH
	L901	PU48530-101K	PEAKING COIL	100µH
	L902	PU48530-101K	PEAKING COIL	100µH
	L903	PU48530-221J	PEAKING COIL	220µH
	L904	PU48530-471J	PEAKING COIL	470µH
	EQ301	PU60800	EQUALIZER	
	EQ401	PU60755-2	EQUALIZER	
	EQ402	PU60723-2	EQUALIZER	
	EQ602	PU60725	EQUALIZER	
	LPF101	PU60179	LOW PASS FILTER	
	LPF501	PU60054-2	LOW PASS FILTER	
	or	PU60054-3	LOW PASS FILTER	
	LPF601	PU60097-2	LOW PASS FILTER	
	LPF602	PU60802	LOW PASS FILTER	
	TH1	PU52108-150	POSITIVE THERMISTOR	
	or	PU52108-150T	POSITIVE THERMISTOR	
	CN1	PU58844-4	CAP HOUSING	
	CN2	PU58844-11	CAP HOUSING	
	CN3	PU58844-4	CAP HOUSING	
	CN4	PU58844-2	CAP HOUSING	
	CN5	PU58844-3	CAP HOUSING	
	CN6	PU58844-4	CAP HOUSING	
	CN7	PU58844-5	CAP HOUSING	
	CN8	PU58844-7	CAP HOUSING	
	CN9	PU58844-5	CAP HOUSING	
	CN10	PU58844-6	CAP HOUSING	
	CN11	PU58844-4	CAP HOUSING	
	CN12	PU58844-5	CAP HOUSING	
	CN14	PU58844-2	CAP HOUSING	
	CN15	PU58844-2	CAP HOUSING	
	CN16	PU58844-4	CAP HOUSING	
	CN19	PU58844-4	CAP HOUSING	
	CN20	PU58844-9	CAP HOUSING	
	CN21	PU58844-10	CAP HOUSING	
	CN22	PU58844-10	CAP HOUSING	
	CN23	PU58844-5	CAP HOUSING	
	CN24	PU58844-6	CAP HOUSING	
	CN25	PU58844-7	CAP HOUSING	
	CN26	PU58844-2	CAP HOUSING	
	CN27	PU58844-2	CAP HOUSING	

— MAIN SUB BOARD ASSEMBLY —

PWBA2	PB10126A2-02	MAIN SUB BOARD ASSY	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q403	2SC3354(TS)	TRANSISTOR	
	Q404	2SC1740S(QRS)	TRANSISTOR	
	Q405	2SC1740S(QRS)	TRANSISTOR	
	D405	1SS133	DIODE	
	or	MA165	DIODE	
	R401	QRD161J-431	RESISTOR	430Ω, 1/6W
	R402	QRD161J-431	RESISTOR	430Ω, 1/6W
	R403	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R404	QRD161J-361	RESISTOR	360Ω, 1/6W
	R405	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R406	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R425	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R426	QRD161J-563	RESISTOR	56KΩ, 1/6W
	C409	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C411	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C412	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C413	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C418	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	EQ403	PU60724-2	EQUALIZER	
	TML1	PU59935-7	TERMINAL	

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6. VIDEO SUB BOARD ASSEMBLY 〈02〉

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	PB10127A-04	VIDEO SUB BOARD ASSY
	IC1	NJM2234D	IC
	IC2	NJM2233AD	IC
	IC3	LA7220	IC
	IC4	BA7233	IC
⚠	IC5	PU22517C	COLOR MODULE ASSY
	IC201	VC2072	IC
	IC301	NJM2233AD	IC
	IC302	NJM2233AD	IC
	IC303	VC2069	IC
	IC304	VC2070	IC
	IC305	NJM2233AD	IC
	IC401	PB20225A	COLOR ENH.MODULE ASSY
	Q1	2SC1740S(QRS)	TRANSISTOR
	Q2	2SC1740S(QRS)	TRANSISTOR
	Q3	DTA114YS	TRANSISTOR
	Q4	DTC144ES	TRANSISTOR
	Q5	DTA124ES	TRANSISTOR
	Q6	2SC1740S(QRS)	TRANSISTOR
	Q7	2SC1740S(QRS)	TRANSISTOR
	Q8	DTC143ES	TRANSISTOR
	Q9	DTC144ES	TRANSISTOR
	Q10	2SC3354(TS)	TRANSISTOR
	Q11	DTC144ES	TRANSISTOR
	Q12	2SC1740S(QRS)	TRANSISTOR
	Q13	2SC1740S(QRS)	TRANSISTOR
	Q14	DTC144ES	TRANSISTOR
	Q15	DTA124ES	TRANSISTOR
	Q16	2SC1740S(QRS)	TRANSISTOR
	Q17	2SC1740S(QRS)	TRANSISTOR
	Q18	DTC144ES	TRANSISTOR
	Q20	DTC144ES	TRANSISTOR
	Q21	2SC1740S(QRS)	TRANSISTOR
	Q22	2SC1740S(QRS)	TRANSISTOR
	Q23	DTC144ES	TRANSISTOR
	Q25	DTC144ES	TRANSISTOR
	Q28	2SC1740S(QRS)	TRANSISTOR
	Q30	DTC144ES	TRANSISTOR
	Q31	DTC144ES	TRANSISTOR
	Q201	2SC1740S(QRS)	TRANSISTOR
	Q202	2SC1740S(QRS)	TRANSISTOR
	Q203	2SC1740S(QRS)	TRANSISTOR
	Q204	DTA144WS	TRANSISTOR
	Q305	2SC1740S(QRS)	TRANSISTOR
	Q306	2SC1740S(QRS)	TRANSISTOR
	Q307	2SC1740S(QRS)	TRANSISTOR
	Q308	2SC1740S(QRS)	TRANSISTOR
	Q309	2SC1740S(QRS)	TRANSISTOR
	Q310	2SC1740S(QRS)	TRANSISTOR
	Q311	2SC1740S(QRS)	TRANSISTOR
	Q312	2SC1740S(QRS)	TRANSISTOR
	Q313	2SC1740S(QRS)	TRANSISTOR
	Q314	2SC1740S(QRS)	TRANSISTOR
	Q401	2SA933S(RS)	TRANSISTOR
	Q402	DTC144ES	TRANSISTOR
	Q403	DTA124ES	TRANSISTOR
	Q405	DTC144ES	TRANSISTOR
	Q406	DTA124ES	TRANSISTOR
	D1	1SS133	DIODE
	or	MA165	DIODE
	D2	1SS133	DIODE
	or	MA165	DIODE
	D3	1SS133	DIODE
	or	MA165	DIODE
	D4	1SS133	DIODE
	or	MA165	DIODE
	D5	1SS133	DIODE
	or	MA165	DIODE
	D6	1SS133	DIODE
	or	MA165	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	D7	1SS133	DIODE
	or	MA165	DIODE
	D8	1SS133	DIODE
	or	MA165	DIODE
	D9	1SS133	DIODE
	or	MA165	DIODE
	D10	1SS133	DIODE
	or	MA165	DIODE
	D11	1SS133	DIODE
	or	MA165	DIODE
	D12	1SS133	DIODE
	or	MA165	DIODE
	D13	1SS133	DIODE
	or	MA165	DIODE
	D14	1SS133	DIODE
	or	MA165	DIODE
	D15	1SS133	DIODE
	or	MA165	DIODE
	D16	1SS133	DIODE
	or	MA165	DIODE
	D201	1SS133	DIODE
	or	MA165	DIODE
	R5	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R6	QRD161J-123	RESISTOR 12KΩ, 1/6W
	R7	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R8	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R9	QRD161J-512	RESISTOR 5.1KΩ, 1/6W
	R10	QVZ3518-332	V RESISTOR, CNR INPUT LEVEL 3.3KΩ
	R11	QVZ3518-471	V RESISTOR, CNR FEEDBACK 470Ω
	R12	QRD161J-101	RESISTOR 100Ω, 1/6W
	R13	QVZ3518-472	V RESISTOR, CNR NC BALANCE 4.7KΩ
	R14	QRD161J-561	RESISTOR 560Ω, 1/6W
	R15	QRD161J-561	RESISTOR 560Ω, 1/6W
	R16	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R17	QRD161J-272	RESISTOR 2.7KΩ, 1/6W
	R18	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R19	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R22	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R23	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R24	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R25	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R26	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R28	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R30	QRD161J-331	RESISTOR 330Ω, 1/6W
	R31	QRD161J-471	RESISTOR 470Ω, 1/6W
	R32	QRD161J-153	RESISTOR 15KΩ, 1/6W
	R33	QRD161J-333	RESISTOR 33KΩ, 1/6W
	R35	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R36	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R39	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R40	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R41	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R42	QRD161J-122	RESISTOR 1.2KΩ, 1/6W
	R43	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R44	QRD161J-153	RESISTOR 15KΩ, 1/6W
	R45	QRD161J-330	RESISTOR 33Ω, 1/6W
	R46	QVZ3518-471	V RESISTOR, EP REC COL LEV CH-2 470Ω
	R48	QVZ3518-471	V RESISTOR, SP REC COL LEV CH-2 470Ω
	R49	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R50	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R51	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R52	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R53	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R54	QRD161J-122	RESISTOR 1.2KΩ, 1/6W
	R55	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R56	QRD161J-153	RESISTOR 15KΩ, 1/6W
	R57	QRD161J-470	RESISTOR 47Ω, 1/6W
	R58	QVZ3518-471	V RESISTOR, EP REC COL LEV CH-1 470Ω
	R60	QVZ3518-471	V RESISTOR, SP REC COL LEV CH-1 470Ω
	R61	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R62	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R64	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R67	QRD161J-101	RESISTOR 100Ω, 1/6W
	R68	QRD161J-101	RESISTOR 100Ω, 1/6W
	R69	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R70	QRD161J-152	RESISTOR 1.5KΩ, 1/6W
	R71	QRD161J-392	RESISTOR 3.9KΩ, 1/6W
	R72	QRD161J-101	RESISTOR 100Ω, 1/6W
	R83	QRD161J-561	RESISTOR 560Ω, 1/6W
	R84	QRD161J-681	RESISTOR 680Ω, 1/6W
	R85	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R86	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R87	QVZ3518-102	V RESISTOR, CNR OUTPUT LEVEL 1KΩ
	R88	QRD161J-561	RESISTOR 560Ω, 1/6W
	R89	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R90	QRD161J-821	RESISTOR 820Ω, 1/6W
	R91	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R92	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R93	QRD161J-122	RESISTOR 1.2KΩ, 1/6W
	R94	QRD162J-155	RESISTOR 1.5MΩ, 1/6W
	R95	QRD161J-182	RESISTOR 1.8KΩ, 1/6W
	R201	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R202	QRD161J-563	RESISTOR 56KΩ, 1/6W
	R203	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R204	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R205	QRD161J-331	RESISTOR 330Ω, 1/6W
	R206	QVZ3518-681	V RESISTOR, C COMB ADJ 1 680Ω
	R207	QVZ3518-471	V RESISTOR, C COMB ADJ 1 470Ω
	R208	QRD161J-241	RESISTOR 240Ω, 1/6W
	R209	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R210	QVZ3518-102	V RESISTOR, C COMB ADJ 2.3 1KΩ
	R211	QRD161J-221	RESISTOR 220Ω, 1/6W
	R212	QVZ3518-681	V RESISTOR, Y COMB ADJ 680Ω
	R213	QVZ3518-222	V RESISTOR, Y COMB ADJ 2.2KΩ
	R215	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R216	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R217	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R218	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R219	QRD161J-751	RESISTOR 750Ω, 1/6W
	R220	QRD161J-223	RESISTOR 22KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	R221	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R222	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R223	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R224	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R225	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R226	QRD161J-271	RESISTOR 270Ω, 1/6W
	R227	QRD161J-271	RESISTOR 270Ω, 1/6W
	R228	QRD161J-271	RESISTOR 270Ω, 1/6W
	R309	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R310	QVZ3518-222	V RESISTOR, C COMB ADJ 2.3 2.2KΩ
	R311	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R312	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R313	QRD161J-470	RESISTOR 47Ω, 1/6W
	R314	QRD161J-221	RESISTOR 220Ω, 1/6W
	R315	QRD161J-271	RESISTOR 270Ω, 1/6W
	R316	QRD161J-121	RESISTOR 120Ω, 1/6W
	R317	QRD161J-821	RESISTOR 820Ω, 1/6W
	R318	QVZ3518-472	V RESISTOR, EE/PB DC OFF SET 4.7KΩ
	R321	QRD161J-151	RESISTOR 150Ω, 1/6W
	R322	QVZ3518-332	V RESISTOR, Y LEVEL ADJ 3.3KΩ
	R323	QRD161J-821	RESISTOR 820Ω, 1/6W
	R324	QRD161J-470	RESISTOR 47Ω, 1/6W
	R325	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R326	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R327	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R328	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R329	QRD161J-621	RESISTOR 620Ω, 1/6W
	R330	QRD161J-152	RESISTOR 1.5KΩ, 1/6W
	R331	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R332	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R333	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R334	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R335	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R336	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R337	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R338	QRD161J-331	RESISTOR 330Ω, 1/6W
	R401	QRD161J-561	RESISTOR 560Ω, 1/6W
	R402	QRD161J-272	RESISTOR 2.7KΩ, 1/6W
	R403	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R404	QRD161J-153	RESISTOR 15KΩ, 1/6W
	R405	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R407	QRD161J-391	RESISTOR 390Ω, 1/6W
	R408	QVZ3518-331	V RESISTOR, COLOR EMPHANSER 1 330Ω
	R409	QRD161J-391	RESISTOR 390Ω, 1/6W
	R410	QVZ3518-331	V RESISTOR, COLOR EMPHANSER 2 330Ω
	R411	QRD161J-391	RESISTOR 390Ω, 1/6W
	R412	QVZ3518-331	V RESISTOR, COLOR EMPHANSER 3 330Ω
	R413	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R414	QRD161J-561	RESISTOR 560Ω, 1/6W
	R415	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R416	QRD161J-473	RESISTOR 47KΩ, 1/6W
	C1	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C2	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C3	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C4	QETC0JM-476	E CAPACITOR 47μF, 6.3V
	C5	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C8	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C9	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C10	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C13	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C14	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C16	QETC1CM-476	E CAPACITOR 47μF, 16V
	C17	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C18	QCBB1HJ-181	CAPACITOR 180PF, 50V
	C19	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C20	QCS11HJ-5R0	CAPACITOR 5PF, 50V
	C21	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C22	QCT25CH-101	CAPACITOR 100PF
	C23	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C24	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C25	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C26	QETC1HM-105	E CAPACITOR 1μF, 50V
	C27	QCBB1HJ-331	CAPACITOR 330PF, 50V
	C28	QETC0JM-476	E CAPACITOR 47μF, 6.3V
	C29	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C30	QETC0JM-476	E CAPACITOR 47μF, 6.3V
	C31	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C33	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C34	QCVC1CN-103	CAPACITOR 0.01μF, 16V
	C36	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C37	QETB0JM-337	E CAPACITOR 330μF, 6.3V
	C38	QETB1EM-475	E CAPACITOR 4.7μF, 25V
	C39	QETC1HM-104	E CAPACITOR 0.1μF, 50V
	C40	QETC1HM-104	E CAPACITOR 0.1μF, 50V
	C41	QETC0JM-337	E CAPACITOR 330μF, 6.3V
	C42	QETC1EM-335	E CAPACITOR 3.3μF, 25V
	C43	QETC1HM-474	E CAPACITOR 0.47μF, 50V
	C44	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C45	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C46	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C47	QCSB1HJ-300	CAPACITOR 30PF, 50V
	C48	QCC31CJ-473	CAPACITOR 0.047μF, 16V
	C50	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C51	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C52	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C53	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C54	QCSB1HJ-560	CAPACITOR 56PF, 50V
	C55	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C56	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C57	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C58	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C59	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C60	QCSB1HJ-560	CAPACITOR 56PF, 50V
	C61	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C62	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C70	QCSB1HJ-200	CAPACITOR 20PF, 50V
	C71	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C72	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C73	QCVB1CN-103	CAPACITOR 0.01μF, 16V
	C74	QCSB1HJ-680	CAPACITOR 68PF, 50V
	C75	QCS31HJ-271	CAPACITOR 270PF, 50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C76	QCS31HJ-820	CAPACITOR	82PF, 50V
	C77	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C78	QFN31HJ-683	M CAPACITOR	0.068μF, 50V
	C79	QFN31HJ-683	M CAPACITOR	0.068μF, 50V
	C80	QCC31CJ-223	CAPACITOR	0.022μF, 16V
	C81	QETCOJM-107	E CAPACITOR	100μF, 6.3V
	C82	QCC31CJ-223	CAPACITOR	0.022μF, 16V
	C83	QETCOJM-107	E CAPACITOR	100μF, 6.3V
	C84	QETC1CM-336	E CAPACITOR	33μF, 16V
	C85	QETC1CM-336	E CAPACITOR	33μF, 16V
	C201	QER61HM-105	E CAPACITOR	1μF, 50V
	C202	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C203	QER61CM-476	E CAPACITOR	47μF, 16V
	C204	QETC1CM-476	E CAPACITOR	47μF, 16V
	C205	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C206	QETC1CM-476	E CAPACITOR	47μF, 16V
	C207	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C208	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C209	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C210	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C211	QETC1CM-476	E CAPACITOR	47μF, 16V
	C212	QCT25CH-390	CAPACITOR	39PF
	C213	PU51163-820	CAPACITOR	82PF
	C214	QETCOJM-227	E CAPACITOR	220μF, 6.3V
	C216	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C217	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C218	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C219	PU51163-820	CAPACITOR	82PF
	C220	QCSB1HJ-330	CAPACITOR	33PF, 50V
	C305	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C306	QETCOJM-107	E CAPACITOR	100μF, 6.3V
	C307	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C308	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C309	QETC1CM-476	E CAPACITOR	47μF, 16V
	C310	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C311	QCBB1HJ-271	CAPACITOR	270PF, 50V
	C313	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C314	QETC1CM-476	E CAPACITOR	47μF, 16V
	C315	QCSB1HK-6R8	CAPACITOR	6.8PF, 50V
	C317	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C318	QETCOJM-476	E CAPACITOR	47μF, 6.3V
	C319	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C321	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C322	QETC1CM-107	E CAPACITOR	100μF, 16V
	C323	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C324	QETCOJM-227	E CAPACITOR	220μF, 6.3V
	C325	QETC1CM-106	E CAPACITOR	10μF, 16V
	C326	QETC1EM-335	E CAPACITOR	3.3μF, 25V
	C327	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C328	QETC1AM-107	E CAPACITOR	100μF, 10V
	C329	QETC1CM-106	E CAPACITOR	10μF, 16V
	C330	QETCOJM-476	E CAPACITOR	47μF, 6.3V
	C331	QETC1AM-107	E CAPACITOR	100μF, 10V
	C332	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C333	QETC1CM-476	E CAPACITOR	47μF, 16V
	C401	QCVB1CN-103	CAPACITOR	0.01μF, 16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C402	QETC1CM-476	E CAPACITOR	47μF, 16V
	C403	QFN31HJ-681	M CAPACITOR	680PF, 50V
	C404	QCBB1HJ-391	CAPACITOR	390PF, 50V
	C405	QCBB1HJ-750	CAPACITOR	75PF, 50V
	C406	QEN61CM-106	NP E CAPACITOR	10μF, 16V
	C408	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C409	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C410	QETC1CM-476	E CAPACITOR	47μF, 16V
	C412	QCSB1HJ-150	CAPACITOR	15PF, 50V
	L1	PU59153-101K	PEAKING COIL	100μH
	L2	PU48530-101K	PEAKING COIL	100μH
	L3	PU58308-822J	COIL	8.2mH
	L5	PU59152-151J	PEAKING COIL	150μH
	L6	PU58295	COIL	
	L7	PU59152-150J	PEAKING COIL	15μH
	L8	PU59153-101K	PEAKING COIL	100μH
	L9	PU59153-101K	INDUCTOR	100μH
	L10	PU60165-120G	COIL	12μH
	L11	PU48530-471J	PEAKING COIL	470μH
	L12	PU48530-222J	PEAKING COIL	2.2mH
	L14	PU48530-151K	PEAKING COIL	150μH
	L202	PU59153-101K	PEAKING COIL	100μH
	L203	PU48530-101K	PEAKING COIL	100μH
	L204	PU59152-3R3J	PEAKING COIL	3.3μH
	L301	PU48530-101K	PEAKING COIL	100μH
	L302	PU48530-101K	PEAKING COIL	100μH
	L303	PU59153-101K	PEAKING COIL	100μH
	L304	PU59153-101K	PEAKING COIL	100μH
	L305	PU48530-101K	PEAKING COIL	100μH
	L306	PU59153-100K	PEAKING COIL	10μH
	L307	PU59153-101K	PEAKING COIL	100μH
	L308	PU59152-270J	PEAKING COIL	27μH
	L309	PU59152-2R2J	INDUCTOR	2.2μH
	L401	PU59152-181J	PEAKING COIL	180μH
	L402	PU59152-820J	PEAKING COIL	82μH
	L403	PU48530-101K	PEAKING COIL	100μH
	L404	PU48530-101K	PEAKING COIL	100μH
	L405	PU60705	COIL	
	EQ401	PU60701	EQUALIZER	
	EQ402	PU60702	EQUALIZER	
	EQ403	PU60702	EQUALIZER	
	LPF201	PU60805	LOW PASS FILTER	
	LPF301	PU60179	LOW PASS FILTER	
	LPF302	PU60179-2	LOW PASS FILTER	
	BPF1	PU60098	BAND PASS FILTER	
	BPF201	PU60801	BAND PASS FILTER	
	BPF202	PU60801	BAND PASS FILTER	
	CF1	PU58852	CERAMIC FILTER	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	DL1	PU58294-3	1H DELAY LINE	
	DL2	PU60227	1H DELAY LINE	
⚠	X1	PU60059	CRYSTAL RESONATOR	
	T1	PU60057-3	TANK FILTER	
	or	PU60057-2	TANK FILTER	
	HD1	PQM30029-120	HOLDER(DL)	
	TP	PU57545	TEST-PIN, X20	
	CN1	PU58844-4	CAP HOUSING	
	CN2	PU58844-2	CAP HOUSING	
	CN3	PU58844-2	CAP HOUSING	
	CN4	PU58844-4	CAP HOUSING	
	CN5	PU58844-8	CAP HOUSING	
	CN7	PU58844-4	CAP HOUSING	
	CN9	PU58844-6	CAP HOUSING	
	CN10	PU58844-2	CAP HOUSING	
	CN11	PU58844-2	CAP HOUSING	
	CN14	PU58844-2	CAP HOUSING	

— COLOR SUB BOARD ASSEMBLY —

PWBA	PB40057A	COLOR SUB BOARD ASSY	
Q1	DTC144ES	TRANSISTOR	
D1	1SS133	DIODE	
or	MA165	DIODE	
R1	QRD162J-103	RESISTOR	10KΩ, 1/6W
R2	QRD162J-153	RESISTOR	15KΩ, 1/6W
C1	QFN31HJ-563	M CAPACITOR	0.056μF, 50V

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7. ON SCREEN BOARD ASSEMBLY ⟨03⟩

PWBA	PB10128A-03	ON SCREEN BOARD ASSY
IC1	BA7038	IC
IC101	VC2048	IC
IC102	VC2053	IC
IC103	NJM2233AD	IC
IC104	NJM2217L	IC
IC105	NJM2220S	IC
IC106	BA236	IC

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	IC201	TA78L009AP	IC
	IC202	TC4066BP	IC
	IC203	AN6040	IC
	IC204	TC74HC02AP	IC
	IC205	TC74HC4066P	IC
	IC206	AN2275NK	IC
	IC207	M5239L	IC
	Q1	DTC144ES	TRANSISTOR
	Q2	2SC1740S	TRANSISTOR
	Q3	DTC144ES	TRANSISTOR
	Q4	DTA144ES	TRANSISTOR
	Q101	2SC1740S	TRANSISTOR
	Q102	2SC1740S	TRANSISTOR
	Q103	2SC1740S	TRANSISTOR
	Q104	2SC1740S	TRANSISTOR
	Q105	2SA1309(RS)	TRANSISTOR
	Q106	2SC1740S	TRANSISTOR
	Q107	2SC1740S	TRANSISTOR
	Q108	2SC1740S	TRANSISTOR
	Q109	2SC1740S	TRANSISTOR
	Q110	DTA114YS	TRANSISTOR
	Q111	DTC144ES	TRANSISTOR
	Q112	DTC144ES	TRANSISTOR
	Q113	DTA143ES	TRANSISTOR
	Q114	DTC124ES	TRANSISTOR
	Q115	2SC1740S	TRANSISTOR
	Q116	2SA933S	TRANSISTOR
	Q117	DTC114ES	TRANSISTOR
	Q118	2SA933S	TRANSISTOR
	Q119	DTC114ES	TRANSISTOR
	Q120	DTC144ES	TRANSISTOR
	Q121	DTC144ES	TRANSISTOR
	Q122	DTC144ES	TRANSISTOR
	Q123	DTC114ES	TRANSISTOR
	Q124	DTC114ES	TRANSISTOR
	Q201	2SC1740S	TRANSISTOR
	Q202	2SC1740S	TRANSISTOR
	Q203	2SC1740S	TRANSISTOR
	Q204	DTC144ES	TRANSISTOR
	Q205	2SC1740S	TRANSISTOR
	Q206	2SC1740S	TRANSISTOR
	Q207	2SC1740S	TRANSISTOR
	Q208	2SD1330S	TRANSISTOR
	Q209	2SC1740S	TRANSISTOR
	Q210	2SC1740S	TRANSISTOR
	Q211	2SC1740S	TRANSISTOR
	Q212	2SC1740S	TRANSISTOR
	Q213	2SA933S	TRANSISTOR
	Q214	2SA933S	TRANSISTOR
	Q215	2SC1740S	TRANSISTOR
	Q216	DTC144ES	TRANSISTOR
	Q217	2SC1740S	TRANSISTOR
	Q218	DTC144ES	TRANSISTOR
	Q219	2SC1740S	TRANSISTOR
	Q221	DTC144ES	TRANSISTOR
	Q222	2SA933S	TRANSISTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	Q223	2SC1740S	TRANSISTOR
	Q224	2SC1740S	TRANSISTOR
	Q225	2SC1740S	TRANSISTOR
	Q226	2SC1740S	TRANSISTOR
	Q227	2SC1740S	TRANSISTOR
	Q228	2SA933S	TRANSISTOR
	Q229	DTC114ES	TRANSISTOR
	Q230	2SA933S	TRANSISTOR
	Q231	2SC1740S	TRANSISTOR
	Q232	2SA933S	TRANSISTOR
	Q233	2SC1740S	TRANSISTOR
	Q234	2SC1740S	TRANSISTOR
	Q235	2SD1330S	TRANSISTOR
	Q236	2SD1330S	TRANSISTOR
	Q237	2SA933S	TRANSISTOR
	Q238	2SC1740S	TRANSISTOR
	Q239	2SA933S	TRANSISTOR
	Q240	2SC3354(S)	TRANSISTOR
	Q241	2SC1740S	TRANSISTOR
	Q242	2SA933S	TRANSISTOR
	Q243	2SC1740S	TRANSISTOR
	Q244	2SA933S	TRANSISTOR
	Q245	2SC1740S	TRANSISTOR
	Q246	2SA933S	TRANSISTOR
	Q247	2SC1740S	TRANSISTOR
	Q248	2SC1740S	TRANSISTOR
	Q249	2SC1740S	TRANSISTOR
	Q250	2SC1740S	TRANSISTOR
	Q251	DTC114ES	TRANSISTOR
	Q252	DTA114YS	TRANSISTOR
	Q253	DTC144ES	TRANSISTOR
	Q254	2SA933S(RS)	TRANSISTOR
	Q255	2SC1740S(QRS)	TRANSISTOR
	D101	1SS133	DIODE
	or	MA165	DIODE
	D102	1SS133	DIODE
	or	MA165	DIODE
	D103	LTZ-MR15	ZENER DIODE
	D104	1SS133	DIODE
	or	MA165	DIODE
	D105	1SS133	DIODE
	or	MA165	DIODE
	D106	1SS133	DIODE
	or	MA165	DIODE
	D107	1SS133	DIODE
	or	MA165	DIODE
	D201	1SS133	DIODE
	or	MA165	DIODE
	D202	1SS133	DIODE
	or	MA165	DIODE
	D203	1SS133	DIODE
	or	MA165	DIODE
	D204	1SS133	DIODE
	or	MA165	DIODE
	D205	1SS133	DIODE
	or	MA165	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	D206	1SS133	DIODE	
	or	MA165	DIODE	
	D207	1SS133	DIODE	
	or	MA165	DIODE	
	D208	1SS133	DIODE	
	or	MA165	DIODE	
	D209	1SS133	DIODE	
	or	MA165	DIODE	
	D211	1SS133	DIODE	
	or	MA165	DIODE	
	D213	1SS133	DIODE	
	or	MA165	DIODE	
	D214	1SS133	DIODE	
	or	MA165	DIODE	
	D215	1SS133	DIODE	
	or	MA165	DIODE	
	D216	1SS133	DIODE	
	or	MA165	DIODE	
	D217	1SS133	DIODE	
	or	MA165	DIODE	
	D218	1SS133	DIODE	
	or	MA165	DIODE	
	D219	1SS133	DIODE	
	or	MA165	DIODE	
	D220	MA29W(A)	DIODE	
	D301	1SS133	DIODE	
	or	MA165	DIODE	
	D302	1SS133	DIODE	
	or	MA165	DIODE	
	R1	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R2	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R3	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R4	QRD161J-561	RESISTOR	560Ω, 1/6W
	R5	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R6	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R7	QRD161J-221	RESISTOR	220Ω, 1/6W
	R8	QVZ3518-221	V RESISTOR, VCO FREERUN	220Ω
	R9	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R10	QRD161J-564	RESISTOR	560KΩ, 1/6W
	R11	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R12	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R13	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R14	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R15	QVZ3518-105	V RESISTOR, SKEW OFFSET	1MΩ
	R16	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R17	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R20	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R21	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R22	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R23	QVZ3518-103	V RESISTOR, SKEW COMP	10KΩ
	R101	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R102	QRD161J-271	RESISTOR	270Ω, 1/6W
	R103	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R104	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R105	QRD161J-103	RESISTOR	10KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R106	QRD161J-681	RESISTOR	680Ω, 1/6W
	R107	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R108	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R109	QRD161J-271	RESISTOR	270Ω, 1/6W
	R110	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R111	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R112	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R113	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R114	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R115	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R116	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R117	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R118	QRD161J-681	RESISTOR	680Ω, 1/6W
	R119	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R120	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R121	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R122	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R123	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R124	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R125	QRD161J-221	RESISTOR	220Ω, 1/6W
	R126	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R127	QRD161J-681	RESISTOR	680Ω, 1/6W
	R128	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R129	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R130	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R131	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R132	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R133	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R134	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R135	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R136	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R137	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R138	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R139	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R140	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R141	QRD161J-471	RESISTOR	470Ω, 1/6W
	R145	QRD161J-273	RESISTOR	27KΩ, 1/6W
	R146	QRD161J-752	RESISTOR	7.5KΩ, 1/6W
	R147	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R148	QRD161J-561	RESISTOR	560Ω, 1/6W
	R149	QRD161J-561	RESISTOR	560Ω, 1/6W
	R150	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R151	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R152	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R153	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R154	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R155	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R156	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R157	QRD161J-564	RESISTOR	560KΩ, 1/6W
	R158	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R159	QRD161J-561	RESISTOR	560Ω, 1/6W
	R160	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R161	QRD161J-101	RESISTOR	100Ω, 1/6W
	R162	QRD161J-101	RESISTOR	100Ω, 1/6W
	R163	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R164	QVZ3518-103	V RESISTOR, AFC ADJ	10KΩ
	R165	QRD161J-223	RESISTOR	22KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R166	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R167	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R168	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R169	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R170	QRD161J-471	RESISTOR	470Ω, 1/6W
	R171	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R172	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R173	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R174	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R175	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R176	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R177	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R178	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R179	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R180	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R181	QRD161J-681	RESISTOR	680Ω, 1/6W
	R182	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R183	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R184	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R185	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R186	QRD161J-823	RESISTOR	82KΩ, 1/6W
	R187	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R188	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R189	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R190	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R192	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R193	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R194	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R201	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R202	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R203	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R204	QRD161J-471	RESISTOR	470Ω, 1/6W
	R205	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R206	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R207	QRD161J-821	RESISTOR	820Ω, 1/6W
	R208	QRD161J-561	RESISTOR	560Ω, 1/6W
	R209	QVZ3518-152	V RESISTOR, E-E WHITE BAL	1.5KΩ
	R212	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R214	QRD161J-821	RESISTOR	820Ω, 1/6W
	R215	QRD161J-561	RESISTOR	560Ω, 1/6W
	R216	QVZ3518-152	V RESISTOR, PB WHITE BAL	1.5KΩ
	R217	QRD161J-561	RESISTOR	560Ω, 1/6W
	R218	QRD161J-561	RESISTOR	560Ω, 1/6W
	R219	QRD161J-821	RESISTOR	820Ω, 1/6W
	R220	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R221	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R222	QVZ3518-104	V RESISTOR, I.Q CENTER	100KΩ
	R223	QRD161J-823	RESISTOR	82KΩ, 1/6W
	R224	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R225	QVZ3518-104	V RESISTOR, I.Q CENTER	100KΩ
	R226	QRD161J-823	RESISTOR	82KΩ, 1/6W
	R227	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R228	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R229	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R230	QVZ3518-221	V RESISTOR, I.Q COMP LEVEL	220Ω
	R231	QRD161J-103	RESISTOR	10KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R232	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R233	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R234	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R235	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R236	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R237	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R238	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R239	QRD161J-561	RESISTOR	560Ω, 1/6W
	R240	QRD161J-101	RESISTOR	100Ω, 1/6W
	R244	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R245	QVZ3518-152	V RESISTOR, Y LEVEL	1.5KΩ
	R246	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R247	QRD161J-274	RESISTOR	270KΩ, 1/6W
	R249	QRD161J-471	RESISTOR	470Ω, 1/6W
	R250	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R251	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R252	QRD161J-471	RESISTOR	470Ω, 1/6W
	R253	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R254	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R255	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R256	QRD161J-271	RESISTOR	270Ω, 1/6W
	R257	QRD161J-391	RESISTOR	390Ω, 1/6W
	R258	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R259	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R260	QRD161J-101	RESISTOR	100Ω, 1/6W
	R261	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R263	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R264	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R265	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R266	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R268	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R269	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R270	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R271	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R272	QRD161J-561	RESISTOR	560Ω, 1/6W
	R273	QRD161J-471	RESISTOR	470Ω, 1/6W
	R274	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R275	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R276	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R277	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R278	QRD161J-681	RESISTOR	680Ω, 1/6W
	R280	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R281	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R282	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R283	QRD161J-331	RESISTOR	330Ω, 1/6W
	R285	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R286	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R287	QRD161J-683	RESISTOR	68KΩ, 1/6W
	R288	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R289	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R290	QRD161J-561	RESISTOR	560Ω, 1/6W
	R291	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R292	QRD161J-561	RESISTOR	560Ω, 1/6W
	R293	QRD161J-391	RESISTOR	390Ω, 1/6W
	R294	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R295	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R296	QRD161J-223	RESISTOR	22KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R297	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R298	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R299	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R300	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R301	QRD161J-681	RESISTOR	680Ω, 1/6W
	R302	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R303	QRD161J-681	RESISTOR	680Ω, 1/6W
	R304	QRD161J-271	RESISTOR	270Ω, 1/6W
	R305	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R306	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R307	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R308	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R309	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R311	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R312	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R313	QRD161J-334	RESISTOR	330KΩ, 1/6W
	R315	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R316	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R317	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R318	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R319	QRD161J-821	RESISTOR	820Ω, 1/6W
	R321	QRD161J-683	RESISTOR	68KΩ, 1/6W
	R323	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R324	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R325	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R326	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R327	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R328	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R329	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R330	QVZ3518-682	V RESISTOR, CHROMA GAIN (2)	6.8KΩ
	R331	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R332	QRD161J-101	RESISTOR	100Ω, 1/6W
	R333	QRD162J-562	RESISTOR	5.6KΩ, 1/6W
	R334	QRD161J-391	RESISTOR	390Ω, 1/6W
	R335	QVZ3518-471	V RESISTOR, Y LEVEL	470Ω
	R337	QVZ3518-103	V RESISTOR, CHROMA CARR BAL	10KΩ
	R338	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R339	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R340	QVZ3518-471	V RESISTOR, BURST LEVEL & HUE	470Ω
	R341	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R342	QVZ3518-332	V RESISTOR, BURST LEVEL & HUE	3.3KΩ
	R343	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R344	QVZ3518-472	V RESISTOR, CHROMA GAIN (1)	4.7KΩ
	R345	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R346	QRD161J-471	RESISTOR	470Ω, 1/6W
	R347	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R348	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R349	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R350	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R351	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R352	QRD161J-471	RESISTOR	470Ω, 1/6W
	R353	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R354	QRD161J-101	RESISTOR	100Ω, 1/6W
	R355	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R356	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R357	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R358	QRD161J-102	RESISTOR	1KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R359	QRD161J-100	RESISTOR	10Ω, 1/6W
	R360	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R361	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R362	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R363	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R364	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R365	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R366	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R367	QRD161J-273	RESISTOR	27KΩ, 1/6W
	R368	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R369	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R370	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R371	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R372	QRD161J-822	RESISTOR	8.2KΩ, 1/6W
	R373	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R374	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R375	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R376	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R377	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R380	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R381	QRD161J-271	RESISTOR	270Ω, 1/6W
	C1	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C2	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C3	QETC1CM-106	E CAPACITOR	10μF, 16V
	C4	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C5	QEN61EM-475	NP E CAPACITOR	4.7μF, 25V
	C6	QCBB1HJ-821	CAPACITOR	820PF, 50V
	C7	QCC31CJ-183	CAPACITOR	0.018μF, 16V
	C8	QETC1HM-475	E CAPACITOR	4.7μF, 50V
	C9	QFN31HJ-182	M CAPACITOR	0.0018μF, 50V
	C10	QFN31HJ-222	M CAPACITOR	0.0022μF, 50V
	C11	QFN31HJ-223	M CAPACITOR	0.022μF, 50V
	C12	QETC1CM-106	E CAPACITOR	10μF, 16V
	C13	QCC31CJ-104	CAPACITOR	0.1μF, 16V
	C14	QCXB1CM-562	CAPACITOR	0.0056μF, 16V
	C15	QCC31CJ-333	CAPACITOR	0.033μF, 16V
	C18	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C23	QCBB1HJ-391	CAPACITOR	390PF, 50V
	C24	QCBB1HJ-221	CAPACITOR	220PF, 50V
	C101	QETC1CM-106	E CAPACITOR	10μF, 16V
	C103	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C104	QETC0JM-336	E CAPACITOR	33μF, 6.3V
	C105	QCT25CH-220	CAPACITOR	22PF
	C106	PU57672-400	TRIMMER CAPACITOR, DOT CLOCK	40PF
	C107	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C108	QETC0JM-336	E CAPACITOR	33μF, 6.3V
	C109	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C110	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C111	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C112	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C113	QCT25CH-220	CAPACITOR	22PF
	C114	PU57672-600	TANTAL CAPACITOR	60PF
	C115	QETC0JM-336	E CAPACITOR	33μF, 6.3V
	C116	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C117	QETC1CM-106	E CAPACITOR	10μF, 16V
	C118	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C119	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C120	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C121	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C122	QCSB1HJ-560	CAPACITOR	56PF, 50V
	C123	QCT25CH-330	CAPACITOR	33PF
	C126	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C127	QETC0JM-336	E CAPACITOR	33μF, 6.3V
	C128	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C129	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C130	QETC1HM-104	E CAPACITOR	0.1μF, 50V
	C131	QFN31HJ-223	M CAPACITOR	0.022μF, 50V
	C133	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C134	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C135	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C136	QETC0JM-336	E CAPACITOR	33μF, 6.3V
	C137	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C138	QCBB1HJ-820	CAPACITOR	82PF, 50V
	C139	QETC0JM-477	E CAPACITOR	470μF, 6.3V
	C140	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C141	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C142	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C143	QFN31HJ-822	M CAPACITOR	0.0082μF, 50V
	C144	QETC0JM-336	E CAPACITOR	33μF, 6.3V
	C146	QCT25CH-680	CAPACITOR	68PF
	C147	QCT25CH-221	CAPACITOR	220PF
	C148	QEN61HM-104	NP E CAPACITOR	0.1μF, 50V
	C149	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C150	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C151	QETC1HM-335	E CAPACITOR	3.3μF, 50V
	C152	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C153	QCT25CH-181	CAPACITOR	180PF
	C154	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C155	QEK61HM-224	E CAPACITOR	0.22μF, 50V
	C156	QCSB1HJ-390	CAPACITOR	39PF, 50V
	C157	QETC1HM-105	E CAPACITOR	1μF, 50V
	C158	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C201	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C202	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C203	QCT25CH-121	CAPACITOR	120PF
	C204	QCT25CH-121	CAPACITOR	120PF
	C205	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C206	QETC1CM-107	E CAPACITOR	100μF, 16V
	C207	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C208	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C209	QETC1CM-107	E CAPACITOR	100μF, 16V
	C210	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C211	QCT25CH-470	CAPACITOR	47PF
	C212	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C213	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C214	QETC1CM-476	E CAPACITOR	47μF, 16V
	C215	QETC1CM-106	E CAPACITOR	10μF, 16V
	C216	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C217	QCT25CH-820	CAPACITOR	82PF
	C218	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C219	QCSB1HJ-390	CAPACITOR	39PF, 50V
	C220	QETC1CM-106	E CAPACITOR	10μF, 16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C221	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C222	QETC1CM-336	E CAPACITOR	33µF, 16V
	C223	QCT25CH-560	CAPACITOR	56PF
	C224	QETC1HM-474	E CAPACITOR	0.47µF, 50V
	C225	QETC1AM-476	E CAPACITOR	47µF, 10V
	C227	QETC1CM-106	E CAPACITOR	10µF, 16V
	C228	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C229	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C230	QCFB1EZ-223	CAPACITOR	0.022µF, 25V
	C231	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C232	QCC31CJ-333	CAPACITOR	0.033µF, 16V
	C233	QCBB1HJ-121	CAPACITOR	120PF, 50V
	C234	QETCOJM-107	E CAPACITOR	100µF, 6.3V
	C235	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C236	QCT25CH-820	CAPACITOR	82PF
	C237	QCSB1HJ-560	CAPACITOR	56PF, 50V
	C238	QCSB1HJ-100	CAPACITOR	10PF, 50V
	C239	QETC1CM-106	E CAPACITOR	10µF, 16V
	C240	QETCOJM-107	E CAPACITOR	100µF, 6.3V
	C241	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C242	QETC1CM-107	E CAPACITOR	100µF, 16V
	C243	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C244	QCT25CH-820	CAPACITOR	82PF
	C245	QCT25CH-150	CAPACITOR	15PF
	C247	QETCOJM-107	E CAPACITOR	100µF, 6.3V
	C248	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C249	QETC1HM-225	E CAPACITOR	2.2µF, 50V
	C250	QETC1CM-106	E CAPACITOR	10µF, 16V
	C251	QCBB1HJ-102	CAPACITOR	0.001µF, 50V
	C252	QETCOJM-336	E CAPACITOR	33µF, 6.3V
	C253	QETC1CM-106	E CAPACITOR	10µF, 16V
	C254	QETC1HM-475	E CAPACITOR	4.7µF, 50V
	C255	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C256	QER60JM-476	E CAPACITOR	47µF, 6.3V
	C258	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C259	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C260	QETCOJM-337	E CAPACITOR	330µF, 6.3V
	C261	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C262	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C263	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C264	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C265	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C266	QCSB1HJ-680	CAPACITOR	68PF, 50V
	C267	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C268	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C269	QETCOJM-226	E CAPACITOR	22µF, 6.3V
	C270	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C271	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C272	QCVB1CN-103	CAPACITOR	0.01µF, 16V
	C273	QCSB1HJ-470	CAPACITOR	47PF, 50V
	L1	PU59153-101K	PEAKING COIL	100µH
	L101	PU59153-101K	PEAKING COIL	100µH
	L102	PU48530-470J	PEAKING COIL	47µH
	L103	PU48530-101K	PEAKING COIL	100µH
	L104	PU58333-220J	PEAKING COIL	22µH
	L105	PU48530-101K	PEAKING COIL	100µH
	L106	PU48530-101K	PEAKING COIL	100µH
	L107	PU59153-101K	PEAKING COIL	100µH
	L108	PU48530-390J	PEAKING COIL	39µH
	L109	PU59153-101K	PEAKING COIL	100µH
	L201	PU48530-101K	PEAKING COIL	100µH
	L202	PU48530-101K	PEAKING COIL	100µH
	L203	PU48530-270J	PEAKING COIL	27µH
	L204	PU60879-101K	PEAKING COIL	100µH
	L205	PU59153-101K	PEAKING COIL	100µH
	L206	PU48530-101K	PEAKING COIL	100µH
	L207	PU59153-101K	PEAKING COIL	100µH
	L208	PU59153-101K	PEAKING COIL	100µH
	L209	PU48530-101K	PEAKING COIL	100µH
	EQ201	PU60691-2	EQUALIZER	
	EQ202	PU60691-2	EQUALIZER	
	LPF201	PU60692-2	LOW PASS FILTER	
	LPF202	PU60799	LOW PASS FILTER	
	BPF201	PU60101	EQUALIZER	
⚠	X101	PU60438	CRYSTAL RESONATOR	
	T101	PU60693	OSC. COIL	
	TP31	PU55774	TEST PIN, X19	
	CN1	PU58844-7	CAP HOUSING	
	CN2	PU58844-8	CAP HOUSING	
	CN3	PU58844-8	CAP HOUSING	
	CN5	PU58844-6	CAP HOUSING	
	CN6	PU58844-2	CAP HOUSING	
	CN7	PU58844-10	CAP HOUSING	
	CN8	PU58844-4	CAP HOUSING	
	CN9	PU58844-5	CAP HOUSING	
	CN10	PU58844-2	CAP HOUSING	
	CN11	PU58844-4	CAP HOUSING	
	CN12	PU58844-2Y	CAP HOUSING	

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8. AUDIO BOARD ASSEMBLY ⟨04⟩

PWBA	PB10129B-01	AUDIO BOARD ASSY
IC1	BA7057	IC
IC2	UPD4066BC	IC
IC3	PB20220A	FMA MODULE
IC4	M5223P	IC
IC5	AN3380NK	IC
IC6	M50253P	IC
IC7	M50255P	IC
IC8	AN3926K	IC

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	IC9	UPD4081BC	IC
		or BU4081B	IC
	IC10	M51131L	IC
	IC11	CXA1101P	IC
	IC12	M51131L	IC
	IC13	BA7765AS	IC
	IC14	BA7765AS	IC
	IC15	UPD4069UBC	IC
	IC16	M5218P	IC
	IC18	TA78DL05AP	IC
	Q1	DTC124ES	TRANSISTOR
	Q2	DTA124ES	TRANSISTOR
	Q3	DTA124ES	TRANSISTOR
	Q4	DTC124ES	TRANSISTOR
	Q5	DTC124ES	TRANSISTOR
	Q6	DTC144ES	TRANSISTOR
	Q7	DTC144ES	TRANSISTOR
	Q8	DTC144ES	TRANSISTOR
	Q11	2SC1740S(RS)	TRANSISTOR
	Q12	DTC143TS	TRANSISTOR
	Q13	DTC143TS	TRANSISTOR
	Q14	2SC1741S(R)	TRANSISTOR
	Q16	2SC1741S(R)	TRANSISTOR
	Q17	2SC1741S(R)	TRANSISTOR
	Q18	2SB810H, J	TRANSISTOR
	Q19	DTC124ES	TRANSISTOR
	Q20	2SC1740S(RS)	TRANSISTOR
	Q21	2SC1740S(RS)	TRANSISTOR
	Q22	DTC124ES	TRANSISTOR
	Q23	2SC1740S(RS)	TRANSISTOR
	Q24	2SC1740S(RS)	TRANSISTOR
	Q25	2SA933S(RS)	TRANSISTOR
⚠	Q26	2SA933S(RS)	TRANSISTOR
⚠	Q27	2SA933S(RS)	TRANSISTOR
	Q28	2SC1740S(RS)	TRANSISTOR
	Q29	2SC1740S(RS)	TRANSISTOR
	Q30	DTA124ES	TRANSISTOR
	Q31	2SA933S(RS)	TRANSISTOR
	Q32	2SA933S(RS)	TRANSISTOR
	Q33	DTC124ES	TRANSISTOR
	Q34	2SC1740S(RS)	TRANSISTOR
	Q35	DTA124ES	TRANSISTOR
	Q36	DTA124ES	TRANSISTOR
	Q37	DTA124ES	TRANSISTOR
	Q38	DTC124ES	TRANSISTOR
	Q39	2SC1740S(RS)	TRANSISTOR
	Q40	2SC1740S(RS)	TRANSISTOR
	Q41	DTA124ES	TRANSISTOR
	Q42	2SC1740S(RS)	TRANSISTOR
	Q43	2SC1740S(RS)	TRANSISTOR
	Q44	DTC144ES	TRANSISTOR
	Q47	DTA144ES	TRANSISTOR
	Q50	DTC144ES	TRANSISTOR
	Q51	DTC144ES	TRANSISTOR
	Q52	DTC144ES	TRANSISTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	Q53	DTC144ES	TRANSISTOR
	Q54	DTC144ES	TRANSISTOR
	Q55	2SC1740S(RS)	TRANSISTOR
	Q56	2SC1740S(RS)	TRANSISTOR
	D1	1SS133	DIODE
		or MA165	DIODE
	D2	1SS133	DIODE
		or MA165	DIODE
	D3	1SS133	DIODE
		or MA165	DIODE
	D4	1SS133	DIODE
		or MA165	DIODE
	D5	1SS133	DIODE
		or MA165	DIODE
	D6	1SS133	DIODE
		or MA165	DIODE
	D7	1SS133	DIODE
		or MA165	DIODE
	D8	1SS133	DIODE
		or MA165	DIODE
	D9	1SS133	DIODE
		or MA165	DIODE
	D10	1SS133	DIODE
		or MA165	DIODE
	D11	1SS133	DIODE
		or MA165	DIODE
	D12	1SS133	DIODE
		or MA165	DIODE
	D13	1SS133	DIODE
		or MA165	DIODE
	D14	1SS133	DIODE
		or MA165	DIODE
	D15	1SS133	DIODE
		or MA165	DIODE
	D16	1SS133	DIODE
		or MA165	DIODE
	D17	1SS133	DIODE
		or MA165	DIODE
	D19	1SS133	DIODE
		or MA165	DIODE
	D20	1SS133	DIODE
		or MA165	DIODE
	D21	1SS133	DIODE
		or MA165	DIODE
	D22	1SS133	DIODE
		or MA165	DIODE
	D23	1SS133	DIODE
		or MA165	DIODE
	D24	1SS133	DIODE
		or MA165	DIODE
	D25	1SS133	DIODE
		or MA165	DIODE
	D26	1SS133	DIODE
		or MA165	DIODE
	D27	1SS133	DIODE
		or MA165	DIODE
	D28	1SS133	DIODE
	D29	11E2	DIODE
	D30	1SS133	DIODE
		or MA165	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	D31	1SS133	DIODE	
	D32	1SS133	DIODE	
	or	MA165	DIODE	
	D33	1SS133	DIODE	
	or	MA165	DIODE	
	R1	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R2	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R3	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R4	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R5	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R6	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R7	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R8	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R9	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R10	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R11	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R12	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R13	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R14	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R15	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R16	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R17	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R18	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R19	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R20	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R21	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R22	QVZ3518-103	V RESISTOR, E-E LEVEL 1 (L)	10KΩ
	R23	QVZ3518-103	V RESISTOR, E-E LEVEL 1 (R)	10KΩ
	R24	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R25	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R26	QRD161J-561	RESISTOR	560Ω, 1/6W
	R27	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R28	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R29	QRD161J-561	RESISTOR	560Ω, 1/6W
	R30	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R31	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R32	QRD161J-273	RESISTOR	27KΩ, 1/6W
	R33	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R34	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R35	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R36	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R37	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R38	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R39	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R40	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R41	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R42	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R43	QRD161J-5R6	RESISTOR	5.6Ω, 1/6W
	R44	QRD161J-5R6	RESISTOR	5.6Ω, 1/6W
	R45	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R46	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R47	QRD161J-154	RESISTOR	150KΩ, 1/6W
	R48	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R49	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R50	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R51	QRD161J-223	RESISTOR	22KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R52	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R54	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R55	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R56	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R57	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R58	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R59	QRD161J-681	RESISTOR	680Ω, 1/6W
	R60	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R61	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R62	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R63	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R64	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R65	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R66	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R67	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R68	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R69	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	R70	QRD161J-274	RESISTOR	270KΩ, 1/6W
	R71	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R72	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R74	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R75	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R76	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R77	QVZ3521-223	V RESISTOR, FM REC LEVEL	22KΩ
	R78	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R79	QRD161J-101	RESISTOR	100Ω, 1/6W
	R80	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R81	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R82	QRD161J-101	RESISTOR	100Ω, 1/6W
	R84	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R86	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R87	QRD162J-102	RESISTOR	1KΩ, 1/6W
	R88	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R90	QRD162J-102	RESISTOR	1KΩ, 1/6W
	R91	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R92	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R101	QRD161J-6R8	RESISTOR	6.8Ω, 1/6W
	R102	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R108	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R109	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R110	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R111	QRD161J-273	RESISTOR	27KΩ, 1/6W
	R112	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R113	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R114	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R115	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R116	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R117	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R118	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R119	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R120	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R121	QRD161J-225	RESISTOR	2.2MΩ, 1/6W
	R122	QVZ3521-472	V RESISTOR, LEVEL INDICATOR (L)	4.7KΩ
	R123	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R124	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R125	QRD161J-473	RESISTOR	47KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	R126	QRD161J-152	RESISTOR 1.5KΩ, 1/6W
	R127	QRD161J-225	RESISTOR 2.2MΩ, 1/6W
	R128	QVZ3521-472	V RESISTOR, LEVEL INDICATOR (R) 4.7KΩ
	R129	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R130	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R131	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R132	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R134	QRD161J-331	RESISTOR 330Ω, 1/6W
	R135	QRD162J-331	RESISTOR 330Ω, 1/6W
	R136	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R137	QRD161J-151	RESISTOR 150Ω, 1/6W
	R138	QRD161J-151	RESISTOR 150Ω, 1/6W
	R144	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R148	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R149	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R150	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R151	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R152	QRD161J-122	RESISTOR 1.2KΩ, 1/6W
	R153	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R156	QRD161J-333	RESISTOR 33KΩ, 1/6W
	R157	QRD161J-104	RESISTOR 100KΩ, 1/6W
	R158	QRD161J-474	RESISTOR 470KΩ, 1/6W
	R159	QRD161J-105	RESISTOR 1MΩ, 1/6W
	R160	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R161	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R162	QRD161J-393	RESISTOR 39KΩ, 1/6W
	R163	QVZ3521-103	V RESISTOR, PB LEVEL (L) 10KΩ
	R165	QRD161J-123	RESISTOR 12KΩ, 1/6W
	R166	QRD161J-274	RESISTOR 270KΩ, 1/6W
	R167	QRD161J-331	RESISTOR 330Ω, 1/6W
	R169	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R170	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R172	QRD161J-123	RESISTOR 12KΩ, 1/6W
	R173	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R174	QRD161J-331	RESISTOR 330Ω, 1/6W
	R175	QRD161J-100	RESISTOR 10Ω, 1/6W
	R176	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R177	QRD161J-0R0	RESISTOR 0Ω, 1/6W
	R178	QRD161J-101	RESISTOR 100Ω, 1/6W
	R179	QRD161J-331	RESISTOR 330Ω, 1/6W
	R180	QRD161J-511	RESISTOR 510Ω, 1/6W
	R181	QVZ3521-103	V RESISTOR, REC/PB LEVEL (L) 10KΩ
	R182	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R183	QRD161J-122	RESISTOR 1.2KΩ, 1/6W
	R184	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R185	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R186	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R187	QRD161J-4R7	RESISTOR 4.7Ω, 1/6W
	R188	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R190	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R191	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R192	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R193	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R194	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R195	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R196	QRD161J-472	RESISTOR 4.7KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	R198	QVZ3521-473	V RESISTOR, BIAS ADJ (R) 47KΩ
	R199	QVZ3521-473	V RESISTOR, BIAS ADJ (L) 47KΩ
	R200	QRD161J-183	RESISTOR 18KΩ, 1/6W
	R201	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R202	QRD161J-122	RESISTOR 1.2KΩ, 1/6W
	R203	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R204	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R205	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R206	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R207	QRD161J-3R9	RESISTOR 3.9Ω, 1/6W
	R208	QRD161J-393	RESISTOR 39KΩ, 1/6W
	R209	QRD161J-680	RESISTOR 68Ω, 1/6W
	R210	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R211	QVZ3521-103	V RESISTOR, REC/PB LEVEL (R) 10KΩ
	R212	QRD161J-511	RESISTOR 510Ω, 1/6W
	R213	QRD161J-331	RESISTOR 330Ω, 1/6W
	R214	QRD161J-101	RESISTOR 100Ω, 1/6W
	R215	QRD161J-0R0	RESISTOR 0Ω, 1/6W
	R216	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R217	QRD161J-100	RESISTOR 10Ω, 1/6W
	R218	QRD161J-331	RESISTOR 330Ω, 1/6W
	R219	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R220	QRD161J-123	RESISTOR 12KΩ, 1/6W
	R222	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R223	QRD161J-273	RESISTOR 27KΩ, 1/6W
	R225	QRD161J-331	RESISTOR 330Ω, 1/6W
	R226	QRD161J-274	RESISTOR 270KΩ, 1/6W
	R227	QRD161J-123	RESISTOR 12KΩ, 1/6W
	R228	QRD161J-123	RESISTOR 12KΩ, 1/6W
	R229	QVZ3521-103	V RESISTOR, PB LEVEL (R) 10KΩ
	R231	QRD161J-393	RESISTOR 39KΩ, 1/6W
	R232	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R233	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R234	QRD161J-105	RESISTOR 1MΩ, 1/6W
	R235	QRD161J-474	RESISTOR 470KΩ, 1/6W
	R236	QRD161J-104	RESISTOR 100KΩ, 1/6W
	R237	QRD161J-333	RESISTOR 33KΩ, 1/6W
	R239	QRD161J-563	RESISTOR 56KΩ, 1/6W
	R240	QRD161J-392	RESISTOR 3.9KΩ, 1/6W
	R241	QRD161J-392	RESISTOR 3.9KΩ, 1/6W
	R242	QRD161J-241	RESISTOR 240Ω, 1/6W
	R243	QRD161J-241	RESISTOR 240Ω, 1/6W
	R244	QRD161J-392	RESISTOR 3.9KΩ, 1/6W
	R245	QRD161J-392	RESISTOR 3.9KΩ, 1/6W
	R246	QRD161J-241	RESISTOR 240Ω, 1/6W
	R247	QRD161J-241	RESISTOR 240Ω, 1/6W
	R248	QRD161J-433	RESISTOR 43KΩ, 1/6W
	R256	QRD161J-123	RESISTOR 12KΩ, 1/6W
	R258	QRD161J-822	RESISTOR 8.2KΩ, 1/6W
	R259	QRD161J-822	RESISTOR 8.2KΩ, 1/6W
	R260	QRD161J-272	RESISTOR 2.7KΩ, 1/6W
	R261	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R262	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R263	QRD161J-272	RESISTOR 2.7KΩ, 1/6W
	R264	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R265	QRD161J-821	RESISTOR 820Ω, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R266	QRD161J-821	RESISTOR	820Ω, 1/6W
	R267	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R268	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R269	QRD162J-103	RESISTOR	10KΩ, 1/6W
	R271	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R272	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R275	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R277	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R278	QVZ3521-223	V RESISTOR, E-E LEVEL 2 (L)	22KΩ
	R279	QVZ3521-223	V RESISTOR, E-E LEVEL 2 (R)	22KΩ
	R280	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R281	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R282	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R285	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R286	QRD161J-103	RESISTOR	10KΩ, 1/6W
	RA1	RMLS4J473	RESISTOR ARRAY	
	or	QRB045J-473C	RESISTOR ARRAY	
	RA2	RMLS5J473	RESISTOR ARRAY	
	or	QRB055J-473C	RESISTOR ARRAY	
	RA3	RMLS3J473	RESISTOR ARRAY	
	or	QRB035J-473C	RESISTOR ARRAY	
	C1	QETC1CM-106	E CAPACITOR	10μF, 16V
	C2	QETC1CM-106	E CAPACITOR	10μF, 16V
	C3	QETC1CM-106	E CAPACITOR	10μF, 16V
	C4	QETC1AM-107	E CAPACITOR	100μF, 10V
	C5	QETC1CM-476	E CAPACITOR	47μF, 16V
	C6	QETC1AM-476	E CAPACITOR	47μF, 10V
	C7	QETC1CM-106	E CAPACITOR	10μF, 16V
	C8	QETC1CM-106	E CAPACITOR	10μF, 16V
	C9	QETC1CM-106	E CAPACITOR	10μF, 16V
	C10	QETC1CM-106	E CAPACITOR	10μF, 16V
	C11	QETC1CM-106	E CAPACITOR	10μF, 16V
	C12	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C13	QETC1CM-106	E CAPACITOR	10μF, 16V
	C14	QETC1CM-106	E CAPACITOR	10μF, 16V
	C15	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C16	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C17	QETC1CM-106	E CAPACITOR	10μF, 16V
	C18	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C19	QETC1AM-336	E CAPACITOR	33μF, 10V
	C20	QE331CM-106ZE	NP E CAPACITOR	10μF, 16V
	C21	QETC1CM-476	E CAPACITOR	47μF, 16V
	C22	QE331CM-106ZE	NP E CAPACITOR	10μF, 16V
	C23	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C24	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C25	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C26	QETC1CM-106	E CAPACITOR	10μF, 16V
	C27	QETC1CM-107	E CAPACITOR	100μF, 16V
	C28	QEK61HM-334	E CAPACITOR	0.33μF, 50V
	C29	QEK61CM-226	E CAPACITOR	22μF, 16V
	C30	QEK61HM-334	E CAPACITOR	0.33μF, 50V
	C31	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C32	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C33	QETC1CM-106	E CAPACITOR	10μF, 16V
	C34	QETC1AM-476	E CAPACITOR	47μF, 10V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C35	QE331CM-106ZE	NP E CAPACITOR	10μF, 16V
	C36	QE131CM-106ZE	E CAPACITOR	10μF, 16V
	C37	QETC1CM-226	E CAPACITOR	22μF, 16V
	C38	QETC1CM-106	E CAPACITOR	10μF, 16V
	C39	QETC1AM-336	E CAPACITOR	33μF, 10V
	C40	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C41	QETC1AM-476	E CAPACITOR	47μF, 10V
	C42	QETC1AM-336	E CAPACITOR	33μF, 10V
	C43	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C44	QETC1CM-226	E CAPACITOR	22μF, 16V
	C45	QE131CM-106ZE	E CAPACITOR	10μF, 16V
	C46	QE331CM-106ZE	NP E CAPACITOR	10μF, 16V
	C47	QETC1AM-476	E CAPACITOR	47μF, 10V
	C48	QETC1CM-106	E CAPACITOR	10μF, 16V
	C49	QEN61CM-475	NP E CAPACITOR	4.7μF, 16V
	C51	QCBB1HJ-471	CAPACITOR	470PF, 50V
	C52	QCBB1HJ-471	CAPACITOR	470PF, 50V
	C53	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C54	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C55	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C56	QETC1CM-106	E CAPACITOR	10μF, 16V
	C57	QFV71HJ-104	M CAPACITOR	0.1μF, 50V
	C58	QCBB1HJ-331	CAPACITOR	330PF, 50V
	C59	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C60	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C61	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C62	QEK61HM-104	E CAPACITOR	0.1μF, 50V
	C63	QFV71HJ-223	M CAPACITOR	0.022μF, 50V
	C64	QFV71HJ-104	M CAPACITOR	0.1μF, 50V
	C65	QCBB1HK-561	CAPACITOR	560PF, 50V
	C66	QFV71HJ-104	M CAPACITOR	0.1μF, 50V
	C67	QCBB1HK-561	CAPACITOR	560PF, 50V
	C68	QFV71HJ-104	M CAPACITOR	0.1μF, 50V
	C69	QFV71HJ-223	M CAPACITOR	0.022μF, 50V
	C70	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C71	QEK60JM-107	E CAPACITOR	100μF, 6.3V
	C72	QETC1HM-335	E CAPACITOR	3.3μF, 50V
	C73	QFV71HJ-223	M CAPACITOR	0.022μF, 50V
	C74	QFV71HJ-223	M CAPACITOR	0.022μF, 50V
	C75	QCBB1HJ-271	CAPACITOR	270PF, 50V
	C76	QCBB1HJ-271	CAPACITOR	270PF, 50V
	C77	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C78	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C79	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C80	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C81	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C82	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C83	QETC1CM-106	E CAPACITOR	10μF, 16V
	C84	QETC1CM-476	E CAPACITOR	47μF, 16V
	C85	QETC1CM-106	E CAPACITOR	10μF, 16V
	C86	QETC1CM-106	E CAPACITOR	10μF, 16V
	C87	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C88	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C89	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C90	QEN61HM-335	NP E CAPACITOR	3.3μF, 50V
	C91	QCBB1HJ-821	CAPACITOR	820PF, 50V
	C92	QCBB1HJ-821	CAPACITOR	820PF, 50V
	C93	QEN61HM-335	NP E CAPACITOR	3.3μF, 50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C94	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C95	QETC1AM-476	E CAPACITOR	47μF, 10V
	C96	QETC1CM-107	E CAPACITOR	100μF, 16V
	C97	QETA1CM-107	E CAPACITOR	100μF, 16V
	C98	QETB1HM-105	E CAPACITOR	1μF, 50V
	C100	QETC1HM-334	E CAPACITOR	0.33μF, 50V
	C101	QETB1HM-334	E CAPACITOR	0.33μF, 50V
	C102	QETC1CM-476	E CAPACITOR	47μF, 16V
	C103	QETB1CM-476	E CAPACITOR	47μF, 16V
	C104	QETC1CM-336	E CAPACITOR	33μF, 16V
	C105	QETC1CM-336	E CAPACITOR	33μF, 16V
	C106	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C107	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C108	QETC1CM-106	E CAPACITOR	10μF, 16V
	C109	QFV71HJ-333	M CAPACITOR	0.033μF, 50V
	C111	QFN31HJ-822	M CAPACITOR	0.0082μF, 50V
	C112	QFN31HJ-822	M CAPACITOR	0.0082μF, 50V
	C113	QEN61CM-106	NP E CAPACITOR	10μF, 16V
	C114	QETC1HM-475	E CAPACITOR	4.7μF, 50V
	C115	QEN61CM-106	NP E CAPACITOR	10μF, 16V
	C116	QETC1CM-106	E CAPACITOR	10μF, 16V
	C117	QETC1CM-106	E CAPACITOR	10μF, 16V
	C118	QETC1CM-336	E CAPACITOR	33μF, 16V
	C119	QETC1CM-106	E CAPACITOR	10μF, 16V
	C120	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C121	QFN31HJ-222	M CAPACITOR	0.0022μF, 50V
	C122	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C123	QEK61CM-476	E CAPACITOR	47μF, 16V
	C124	QFP32AJ-562	P.P.CAP	0.0056μF, 100V
	C125	QETC1CM-336	E CAPACITOR	33μF, 16V
	C126	QETC1CM-476	E CAPACITOR	47μF, 16V
	C127	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C128	QETC1HM-105	E CAPACITOR	1μF, 50V
	C129	QFV71HJ-273	M CAPACITOR	0.027μF, 50V
	C130	QFV71HJ-153	M CAPACITOR	0.015μF, 50V
	C131	QFN31HJ-332	M CAPACITOR	0.0033μF, 50V
	C132	QFV71HJ-333	M CAPACITOR	0.033μF, 50V
	C133	QETC1HM-104	E CAPACITOR	0.1μF, 50V
	C134	QETC1HM-105	E CAPACITOR	1μF, 50V
	C137	QEN61CM-106	NP E CAPACITOR	10μF, 16V
	C138	QETC1CM-226	E CAPACITOR	22μF, 16V
	C139	QETC1CM-227	E CAPACITOR	220μF, 16V
	C140	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C141	QFN31HJ-122	M CAPACITOR	0.0012μF, 50V
	C142	QETC1HM-105	E CAPACITOR	1μF, 50V
	C143	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C145	QETC1HM-105	E CAPACITOR	1μF, 50V
	C147	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C148	QFN31HJ-332	M CAPACITOR	0.0033μF, 50V
	C149	QFN31HJ-472	M CAPACITOR	0.0047μF, 50V
	C150	QFN31HJ-472	M CAPACITOR	0.0047μF, 50V
	C151	QFV71HJ-683	M CAPACITOR	0.068μF, 50V
	C152	QCBB1HJ-221	CAPACITOR	220PF, 50V
	C153	QCBB1HJ-221	CAPACITOR	220PF, 50V
	C154	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C155	QETC1CM-106	E CAPACITOR	10μF, 16V
	C157	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C158	QETC1HM-105	E CAPACITOR	1μF, 50V
	C159	QETC1HM-104	E CAPACITOR	0.1μF, 50V
	C160	QFV71HJ-333	M CAPACITOR	0.033μF, 50V
	C161	QFN31HJ-332	M CAPACITOR	0.0033μF, 50V
	C162	QFV71HJ-153	M CAPACITOR	0.015μF, 50V
	C163	QFV71HJ-273	M CAPACITOR	0.027μF, 50V
	C164	QETC1HM-105	E CAPACITOR	1μF, 50V
	C165	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C166	QETC1CM-476	E CAPACITOR	47μF, 16V
	C167	QETC1CM-336	E CAPACITOR	33μF, 16V
	C168	QFV71HJ-683	M CAPACITOR	0.068μF, 50V
	C169	QFN31HJ-472	M CAPACITOR	0.0047μF, 50V
	C170	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C171	QFN31HJ-332	M CAPACITOR	0.0033μF, 50V
	C173	QETC1HM-105	E CAPACITOR	1μF, 50V
	C175	QETC1CM-106	E CAPACITOR	10μF, 16V
	C176	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C177	QFN31HJ-122	M CAPACITOR	0.0012μF, 50V
	C178	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C179	QETC1CM-227	E CAPACITOR	220μF, 16V
	C180	QETC1CM-226	E CAPACITOR	22μF, 16V
	C181	QEN61CM-106	NP E CAPACITOR	10μF, 16V
	C184	QETC1HM-475	E CAPACITOR	4.7μF, 50V
	C185	QETC1CM-106	E CAPACITOR	10μF, 16V
	C186	QETC1HM-105	E CAPACITOR	1μF, 50V
	C187	QETC1CM-106	E CAPACITOR	10μF, 16V
	C188	QFV71HJ-473	M CAPACITOR	0.047μF, 50V
	C190	QETC1CM-106	E CAPACITOR	10μF, 16V
	C191	QETC1CM-106	E CAPACITOR	10μF, 16V
	C192	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C193	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C194	QETC1CM-336	E CAPACITOR	33μF, 16V
	C195	QE231CM-106ZE	E CAPACITOR	10μF, 16V
	C196	QETC1CM-106	E CAPACITOR	10μF, 16V
	C197	QETC1HM-105	E CAPACITOR	1μF, 50V
	C198	QETC1HM-105	E CAPACITOR	1μF, 50V
	C199	QETC1HM-105	E CAPACITOR	1μF, 50V
	C200	QETC1HM-105	E CAPACITOR	1μF, 50V
	C201	QFV71HJ-684	M CAPACITOR	0.68μF, 50V
	C202	QETC1CM-336	E CAPACITOR	33μF, 16V
	C203	QETC1CM-336	E CAPACITOR	33μF, 16V
	C204	QFV71HJ-684	M CAPACITOR	0.68μF, 50V
	C205	QETC1CM-107	E CAPACITOR	100μF, 16V
	C206	QETC1CM-107	E CAPACITOR	100μF, 16V
	C222	QETC1CM-107	E CAPACITOR	100μF, 16V
	C224	QEN61CM-476	NP E CAPACITOR	47μF, 16V
	C225	QEN51CM-476	NP E CAPACITOR	47μF, 16V
	C226	QFN31HJ-472	M CAPACITOR	0.0047μF, 50V
	L1	PU48530-101J	PEAKING COIL	100μH
	L2	PU59152-221J	PEAKING COIL	220μH
	L3	PU48530-101J	PEAKING COIL	100μH
	L4	PU58308-822J	COIL	8.2mH
	L5	PU54223-471J	PEAKING COIL	470μH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L6	PU54223-471J	PEAKING COIL	470μH
	L7	PU58308-822J	COIL	8.2mH
	L8	PU60206	LOW PASS FILTER	
	L9	PU60206	LOW PASS FILTER	
	L10	PU59152-1R5K	PEAKING COIL	1.5μH
	L11	PU59152-1R5K	PEAKING COIL	1.5μH
	L12	PU54223-331J	PEAKING COIL	330μH
	BPF1	PU60396	BAND PASS FILTER	
	BPF2	PU60397	BAND PASS FILTER	
	RY1	PU55259	RELAY	
	RY2	PU55259	RELAY	
	RY3	PU55259	RELAY	
⚠	T1	PU60707	OSC TRANSFORMER	
⚠	T2	PU60708	OSC TRANSFORMER	
⚠	T3	PU60304	OSC TRANSFORMER	
	HS1	PU60825	HEAT SINK	
	RV1	PU52105	PLASTIC RIVET	
	SLD1	PQ43657	SHIELD CASE(F.E)	
	SLD2	PQ43659	SHIELD PLATE(FE)	
	SLD3	PQ43660	SHIELD CASE(P/R)	
	SLD4	PQ43662	SHIELD PLATE(PR)	
	SLD5	PQ43663	SHIELD CASE(MIC)	
	SLD7	PQ43665	SHIELD PLATE(MIC)	
	TP1	PU57545	TEST PIN, X16	
	CN1	PU58844-8	CAP HOUSING	
	CN2	PU58844-6	CAP HOUSING	
	CN3	PU58844-6	CAP HOUSING	
	CN4	PU58844-4	CAP HOUSING	
	CN5	PU58844-11	CAP HOUSING	
	CN6	PU58844-7	CAP HOUSING	
	CN7	PU58844-3	CAP HOUSING	
	CN8	PU58844-2	CAP HOUSING	
	CN9	PU58844-10	CAP HOUSING	
	CN10	PU58844-8	CAP HOUSING	
	CN11	PU58844-4R	CAP HOUSING	
	CN12	PU58844-2	CAP HOUSING	
	CN13	PU58844-2	CAP HOUSING	
	CP1	ICP-F15	CIRCUIT PROTECTOR	

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9. MECHACON/SERVO BOARD ASSEMBLY ⟨05⟩

PWBA	PB10131B	MECHACON/SERVO BOARD ASSY

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	TPGND	PU57545	TEST PIN
	IC1	HD49722NT	IC
	IC2	TC74HC4053AP	IC
	IC3	UPC358C	IC
	IC4	TC74HC04AP	IC
	IC6	M5239L	IC
	IC101	M50938A-303SP	IC
	or	M50938E-815SP	IC
	IC102	M54647L	IC
	IC103	BA6222	IC
	IC104	BA6259N	IC
	IC201	BU3758AS	IC
	IC202	M51722P	IC
	IC203	UPC324C	IC
	IC204	UPC393C	IC
	IC205	UPD74HC239C	IC
	Q2	DTC124ES	TRANSISTOR
	Q3	2SA1309QRS	TRANSISTOR
	Q4	2SC1983R	TRANSISTOR
	Q5	DTC124ES	TRANSISTOR
	Q6	DTA124ES	TRANSISTOR
	Q7	DTA124ES	TRANSISTOR
	Q8	DTA124ES	TRANSISTOR
	Q9	DTA124ES	TRANSISTOR
	Q10	DTA124ES	TRANSISTOR
	Q11	DTC114ES	TRANSISTOR
	Q12	DTC124ES	TRANSISTOR
	Q14	DTA124ES	TRANSISTOR
	Q101	2SC1740S(RS)	TRANSISTOR
	or	2SC3311A(RS)	TRANSISTOR
	Q102	2SC1740S(QRS)	TRANSISTOR
	Q103	2SB1010(R)	TRANSISTOR
⚠	Q104	2SC3070	TRANSISTOR
	Q105	2SD1809	TRANSISTOR
	Q201	2SA1309R, S	TRANSISTOR
	Q202	DTA124ES	TRANSISTOR
	Q203	DTC124ES	TRANSISTOR
	D1	1SS133	DIODE
	D2	1SS133	DIODE
	D3	11ES2	DIODE
	D4	HZS13EB2TJ	ZENER DIODE
	or	RD13ES-T1B2	ZENER DIODE
	D5	1SS133	DIODE
	D8	1SS133	DIODE
	D11	1SS133	DIODE
	D12	1SS133	DIODE
	D13	1SS133	DIODE
	D14	1SS133	DIODE
	D17	1SS133	DIODE
	D18	1SS133	DIODE
	D19	1SS133	DIODE
	D20	1SS133	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	D21	1SS133	DIODE
	D22	1SS133	DIODE
	D23	1SS133	DIODE
	D24	1SS133	DIODE
	D25	1SS133	DIODE
	D26	1SS133	DIODE
	D27	1SS133	DIODE
	D30	HZ5C2	DIODE
	D101	1SS133	DIODE
		or MA165	DIODE
	D102	1SS133	DIODE
		or MA165	DIODE
	D103	1SS133	DIODE
		or MA165	DIODE
	D104	HZS4.3EB2	ZENER DIODE
	D105	HZS7.5EB2	ZENER DIODE
	D106	ERA81-004	DIODE
	D107	HZS7.5EB2	ZENER DIODE
	D108	1SS133	DIODE
		or MA165	DIODE
	D109	1SS133	DIODE
		or MA165	DIODE
	D110	11ES2	DIODE
	D111	11ES2	DIODE
	D112	MTZ5.6B	ZENER DIODE
	D113	1SS133	DIODE
		or MA165	DIODE
	D114	1SS133	DIODE
		or MA165	DIODE
	D201	1SS133	DIODE
	D202	1SS133	DIODE
	D203	1SS133	DIODE
	D204	1SS133	DIODE
	D205	1SS133	DIODE
	D206	1SS133	DIODE
	D207	1SS133	DIODE
	D208	1SS133	DIODE
	D209	1SS133	DIODE
	D210	1SS133	DIODE
	D211	1SS133	DIODE
	D212	1SS133	DIODE
	D213	1SS133	DIODE
	D214	1SS133	DIODE
	D215	1SS133	DIODE
	D216	1SS133	DIODE
	D217	1SS133	DIODE
	D218	1SS133	DIODE
	D219	1SS133	DIODE
	D220	1SS133	DIODE
	D221	1SS133	DIODE
	D222	1SS133	DIODE
	D223	1SS133	DIODE
	D224	1SS133	DIODE
	D225	1SS133	DIODE
	D226	1SS133	DIODE
	D227	1SS133	DIODE
	D228	1SS133	DIODE
	D229	1SS133	DIODE
	D230	1SS133	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	D231	1SS133	DIODE	
	D232	1SS133	DIODE	
	D233	1SS133	DIODE	
	D234	1SS133	DIODE	
	R1	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R2	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R3	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R4	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R5	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R6	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R7	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R13	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R14	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R15	QRD161J-155	RESISTOR	1.5MΩ, 1/6W
	R16	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R17	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R19	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R20	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R21	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R22	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R23	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R24	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R25	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R26	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R27	QRD161J-0R0	RESISTOR	0Ω, 1/6W
	R28	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R29	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R30	QRD161J-823	RESISTOR	82KΩ, 1/6W
	R31	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R32	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R33	QRD161J-392	RESISTOR	3.9KΩ, 1/6W
	R34	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R35	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R37	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R38	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R39	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R40	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R41	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R42	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R43	QRD161J-823	RESISTOR	82KΩ, 1/6W
	R44	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R49	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R50	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R51	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R52	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R54	QRD161J-823	RESISTOR	82KΩ, 1/6W
	R56	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R57	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R59	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R60	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R61	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R62	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R63	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R64	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R65	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R66	QRD161J-272	RESISTOR	2.7KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R67	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R70	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R71	QRD161J-273	RESISTOR	27KΩ, 1/6W
	R72	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R77	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R78	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R79	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R80	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R81	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R82	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R83	QRD181J-121	RESISTOR	120Ω, 1/8W
	R85	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R86	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R101	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R102	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R103	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R104	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R105	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R106	QRD161J-122	RESISTOR	1.2KΩ, 1/6W
	R107	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R108	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R109	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R110	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R111	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R112	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R113	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R114	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R115	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R116	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R117	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R118	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R119	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R120	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R121	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R122	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R123	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R124	QRD161J-124	RESISTOR	120KΩ, 1/6W
	R126	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R127	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R128	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R129	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R130	QRD161J-331	RESISTOR	330Ω, 1/6W
	R131	QRD161J-822	RESISTOR	8.2KΩ, 1/6W
	R132	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R133	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R134	QRD181J-152	RESISTOR	1.5KΩ, 1/8W
	R135	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R136	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R138	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R139	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R140	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R141	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R142	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R143	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R144	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R145	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R146	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R147	QRD161J-331	RESISTOR	330Ω, 1/6W
	R148	QRD182J-331	RESISTOR	330Ω, 1/8W
	R149	QRD182J-331	RESISTOR	330Ω, 1/8W
	R201	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R202	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R203	QRD161J-273	RESISTOR	27KΩ, 1/6W
	R204	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R205	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R206	QRD161J-154	RESISTOR	150KΩ, 1/6W
	R207	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R208	QRD161J-683	RESISTOR	68KΩ, 1/6W
	R209	QRD161J-683	RESISTOR	68KΩ, 1/6W
	R210	QRD161J-683	RESISTOR	68KΩ, 1/6W
	R211	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R212	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R213	QRD161J-154	RESISTOR	150KΩ, 1/6W
	R214	QRD161J-154	RESISTOR	150KΩ, 1/6W
	R215	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R216	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R217	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R218	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R219	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R220	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R221	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R222	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R223	QRD161J-153	RESISTOR	15KΩ, 1/6W
	R224	QRD161J-564	RESISTOR	560KΩ, 1/6W
	R225	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R226	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R227	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R228	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R229	QRD161J-564	RESISTOR	560KΩ, 1/6W
	R230	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R231	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R232	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R233	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R234	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R235	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R236	QRD161J-123	RESISTOR	12KΩ, 1/6W
	R237	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R238	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R239	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R240	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R241	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R242	QRD161J-184	RESISTOR	180KΩ, 1/6W
	R244	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R245	QRD161J-183	RESISTOR	18KΩ, 1/6W
	R246	QRD161J-154	RESISTOR	150KΩ, 1/6W
	R247	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R248	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R249	QRD161J-154	RESISTOR	150KΩ, 1/6W
	R250	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R251	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R252	QRD161J-154	RESISTOR	150KΩ, 1/6W
	R253	QRD161J-154	RESISTOR	150KΩ, 1/6W
	R254	QRD161J-104	RESISTOR	100KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R255	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R256	QRD161J-394	RESISTOR	390KΩ, 1/6W
	R257	QRD161J-394	RESISTOR	390KΩ, 1/6W
	R258	QRD161J-274	RESISTOR	270KΩ, 1/6W
	R259	QRD161J-274	RESISTOR	270KΩ, 1/6W
	R260	QRD161J-184	RESISTOR	180KΩ, 1/6W
	R261	QRD161J-184	RESISTOR	180KΩ, 1/6W
	R262	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R263	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R264	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R265	QRD161J-104	RESISTOR	100KΩ, 1/6W
	RA101	QRB049J-272	NETWORK RESISTOR	
	or	QRB047J-272	NETWORK RESISTOR	
	RA102	QRB079J-472	NETWORK RESISTOR	
	or	QRB077J-472	NETWORK RESISTOR	
	RA103	QRB079J-103	NETWORK RESISTOR	
	or	QRB077J-103	NETWORK RESISTOR	
	C1	QER61CM-106	E CAPACITOR	10μF, 16V
	C4	QEK61HM-105	E CAPACITOR	1μF, 50V
	C5	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C6	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C7	QETC1AM-226	E CAPACITOR	22μF, 10V
	C8	QETC1AM-226	E CAPACITOR	22μF, 10V
	C9	QCSB1HJ-150	CAPACITOR	15PF, 50V
	C10	QETC1HM-105	E CAPACITOR	1μF, 50V
	C11	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C12	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C13	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C14	QFV71HJ-473	M CAPACITOR	0.047μF, 50V
	C15	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C16	QCBB1HJ-331	CAPACITOR	330PF, 50V
	C18	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C19	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C20	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C21	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C22	QETC1CM-106	E CAPACITOR	10μF, 16V
	C23	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C24	QFV71HJ-334	M CAPACITOR	0.33μF, 50V
	C25	QCC31CK-682	CAPACITOR	0.0068μF, 16V
	C26	QEK61EM-475	E CAPACITOR	4.7μF, 25V
	C27	QEK61EM-475	E CAPACITOR	4.7μF, 25V
	C28	QETC1CM-106	E CAPACITOR	10μF, 16V
	C29	QETC1CM-106	E CAPACITOR	10μF, 16V
	C30	QCC31CJ-104	CAPACITOR	0.1μF, 16V
	C31	QEN61HM-225	NP E CAPACITOR	2.2μF, 50V
	C32	QFL41HJ-682	M CAPACITOR	0.0068μF, 50V
	C33	QFV71HJ-124	M CAPACITOR	0.12μF, 50V
	C34	QFV71HJ-124	M CAPACITOR	0.12μF, 50V
	C35	QCSB1HJ-390	CAPACITOR	39PF, 50V
	C36	QCSB1HJ-330	CAPACITOR	33PF, 50V
	C37	QCC11CK-473	CAPACITOR	0.047μF, 16V
	C39	QFV71HJ-223	M CAPACITOR	0.022μF, 50V
	C40	QEK61CM-106	E CAPACITOR	10μF, 16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C45	QCC11CJ-104	CAPACITOR	0.1μF, 16V
	C46	QCC11CJ-104	CAPACITOR	0.1μF, 16V
	C47	QCC11CJ-104	CAPACITOR	0.1μF, 16V
	C48	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C49	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C51	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C101	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C102	QETC1EM-335	E CAPACITOR	3.3μF, 25V
	C103	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C104	QETC1HM-105	E CAPACITOR	1μF, 50V
	C105	QETC1EM-106	E CAPACITOR	10μF, 25V
	C106	QER61EM-106	E CAPACITOR	10μF, 25V
	C107	QETC1HM-105	E CAPACITOR	1μF, 50V
	C108	QETC1EM-106	E CAPACITOR	10μF, 25V
	C109	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C110	QCC11CK-104	CAPACITOR	0.1μF, 16V
	C111	QETC1EM-106	E CAPACITOR	10μF, 25V
	C112	QCC11EK-473	CAPACITOR	0.047μF, 25V
	C113	QCC11EK-473	CAPACITOR	0.047μF, 25V
	C201	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C202	QETC1CM-106	E CAPACITOR	10μF, 16V
	C203	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C204	QCXB1CK-472	CAPACITOR	0.0047μF, 16V
	C205	QFV71HJ-393	M CAPACITOR	0.039μF, 50V
	C206	QETC1CM-106	E CAPACITOR	10μF, 16V
	C207	QETC1CM-106	E CAPACITOR	10μF, 16V
	C208	QETC1CM-106	E CAPACITOR	10μF, 16V
	C209	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C210	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C211	QETC1CM-476	E CAPACITOR	47μF, 16V
	C212	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C213	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C214	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C215	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C216	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C217	QFV71HJ-224	M CAPACITOR	0.22μF, 50V
	C218	QFV71HJ-224	M CAPACITOR	0.22μF, 50V
	C219	QFV71HJ-103	M CAPACITOR	0.01μF, 50V
	C220	QFV71HJ-393	M CAPACITOR	0.039μF, 50V
	C221	QFV71HJ-393	M CAPACITOR	0.039μF, 50V
	C222	QFV71HJ-393	M CAPACITOR	0.039μF, 50V
	C223	QFV71HJ-473	M CAPACITOR	0.047μF, 50V
	C224	QFV71HJ-333	M CAPACITOR	0.033μF, 50V
	C225	QFV71HJ-473	M CAPACITOR	0.047μF, 50V
	C226	QFV71HJ-124	M CAPACITOR	0.12μF, 50V
	C227	QFL41HJ-332	M CAPACITOR	0.0033μF, 50V
	C228	QFV71HJ-153	M CAPACITOR	0.015μF, 50V
	C229	QETC1CM-106	E CAPACITOR	10μF, 16V
	L101	PU49994-100	COIL	10μH
⚠	CF101	PU60414	CERAMIC FILTER	
	or	PU60942-Z	CERAMIC FILTER	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	X1	PU60606	CRYSTAL RESONATOR
⚠	HS1	PQ32451	HEAT SINK(3)
	RV1	PU52105	PLASTIC RIVET
	SCW1	SBSE3006Z	TAPPING SCREW, X2
	SCW2	SBSE3008Z	SCREW
	WR1	PU58865-14	FLAT WIRE
	CN1	PU58844-8	CAP HOUSING
	CN2	PU59555-7	CAP HOUSING
	CN3	PU58844-3Y	CAP HOUSING
	CN4	PU58798-20	CAP HOUSING
	CN5	PU58844-2	CAP HOUSING
	CN6	PU58844-5	CAP HOUSING
	CN7	PU58844-3	CAP HOUSING
	CN8	PU58844-7	CAP HOUSING
	CN9	PU58844-5	CAP HOUSING
	CN10	PU58844-2	CAP HOUSING
	CN11	PU58844-5	CAP HOUSING
	CN12	PU58844-3	CAP HOUSING
	CN13	PU58844-7	CAP HOUSING
	CN14	PU59555-6	CAP HOUSING
	CN15	PU59555-10	CAP HOUSING
	CN16	PU58844-6	CAP HOUSING
	CN17	PU58844-2	CAP HOUSING
	CN18	PU59555-13	CAP HOUSING
	CN19	PU58844-2R	CAP HOUSING

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10. POWER SUPPLY B. ASSY ⟨06⟩⟨24⟩⟨25⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10130B-02	POWER SUPPLY BOARD ASSY	
⚠	F1	QMF51J1-2R5N	FUSE, NOT INCLUDED	2.5A, AC125V
⚠	F2	QMF51J1-3R15N	FUSE, NOT INCLUDED	3.15A, AC125V
⚠	F3	QMF51J1-4R0N	FUSE, NOT INCLUDED	4.0A, AC125V
⚠	F4	QMF51J1-2R0N	FUSE, NOT INCLUDED	2.0A, AC125V
⚠	F5	QMF51J1-3R15N	FUSE, NOT INCLUDED	3.15A, AC125V

— TRANSFORMER SECTION ⟨06⟩ —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	PB10130B1-01	TRANS BOARD ASSY	
	IC1	LM2940CT-5.0	IC	
	IC2	UPC7812H	IC	
⚠	Q1	2SB1186(DE)	TRANSISTOR	
	Q2	2SA720(RS)	TRANSISTOR	
	D1	11E2	DIODE	
	D2	11E2	DIODE	
	D3	HZ30-2	ZENER DIODE	
	D4	11E2	DIODE	
	D5	11E2	DIODE	
	D6	11E2	DIODE	
	D7	11E2	DIODE	
	D10	1SS133	DIODE	
	or	MA165	DIODE	
⚠	R1	QRZ0052-100	FUSIBLE RESISTOR	10Ω, FR
⚠	R2	QRZ0052-470	FUSIBLE RESISTOR	47Ω, FR
	R3	QRD181J-272	RESISTOR	2.7KΩ, 1/8W
	R4	QRD181J-682	RESISTOR	6.8KΩ, 1/8W
⚠	R101	QRC121K-225E	RESISTOR	2.2MΩ, 1/2W
	C1	QETC1JM-476	E CAPACITOR	47μF, 63V
	C2	QETC1JM-476	E CAPACITOR	47μF, 63V
	C3	QEK61VM-226	E CAPACITOR	22μF, 35V
	C4	QEK61VM-226	E CAPACITOR	22μF, 35V
	C5	QEK61VM-226	E CAPACITOR	22μF, 35V
	C6	QETB1CM-478	E CAPACITOR	4700μF, 16V
	C7	QETB1CM-478	E CAPACITOR	4700μF, 16V
	C8	QETC1AM-107	E CAPACITOR	100μF, 10V
	C9	QETB1EM-688	E CAPACITOR	6800μF, 25V
	C10	QETC1CM-107	E CAPACITOR	100μF, 16V
	C11	QETB1EM-478	E CAPACITOR	4700μF, 25V
	C12	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C13	QCF31HP-223	CAPACITOR	0.022μF, 50V
⚠	C101	QCZ9016-472P	CAPACITOR	0.0047μF
⚠	RY1	PU59848	RELAY	
	BKT1	PQ20630	TRANS BRACKET	
⚠	HD1	PU57505	FUSE CLIP, X8	
	HS1	PQ32338	HEAT SINK(2)	
	SCW1	SDSP3006Z	SCREW	
	SCW2	SPSP3006Z	SCREW, X2	
	SCW3	SDST3006Z	TAPPING SCREW, X3	
	TP1	PU56008	TEST-PIN	
	CN3	PU58844-2	CAP HOUSING	
	CN9	PU58844-10	CAP HOUSING	
	CN15	PU43351-6	CAP HOUSING	

— OUTLET SECTION ⟨24⟩ —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA2	PB10130B3	OUTLET BOARD ASSY	
⚠	POC1	QMP14B0-200	POWER CORD	
⚠	or	QMP14B0-200E	POWER CORD	
⚠	or	QMP14B0-200J2	POWER CORD	
⚠	AO1	QMC0242-007	AC OUTLET, X2	
	BKT1	PQ32399	BRACKET(5)	
⚠	HD1	QHS3771-108	STRAIN RELIEF	
⚠	SLD1	PQ43747	COVER	

— POWER SECTION ⟨25⟩ —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA3	PB10130A2-06	POWER BOARD ASSY	
	C24	QETB1CM-108	E CAPACITOR	1000μF, 16V
	C25	QETA1CM-108	E CAPACITOR	1000μF, 16V
	C26	QETA1AM-108	E CAPACITOR	1000μF, 10V
	SPC1	PQM30029-121	SPACER	
	TP2	PU56008	TEST-PIN, X2(TP2, 3)	
	CN1	PU58844-14	CAP HOUSING	
	CN2	PU58844-4	CAP HOUSING	
	CN4	PU58844-4	CAP HOUSING	
	CN5	PU58844-6	CAP HOUSING	
	CN6	PU58844-8	CAP HOUSING	
	CN7	PU58844-4	CAP HOUSING	
	CN8	PU58844-4	CAP HOUSING	
	CN101	PU58844-2	CAP HOUSING	
⚠	CP1	ICP-F38	CIRCUIT PROTECTOR	

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11. IF BOARD ASSEMBLY ⟨07⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10087D-01	IF BOARD ASSY	
	JP1	PU59935-16	TERMINAL	
⚠	IC1	M51365SP	IC	
	Q1	2SC3354	TRANSISTOR	
	Q2	2SC3354	TRANSISTOR	
	Q3	2SC1317(RS)	TRANSISTOR	
	Q4	2SC536SPA(FG)	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	Q5	2SC536SPA(G)	TRANSISTOR	
	or	2SC3311A(S)	TRANSISTOR	
	Q6	2SA1309S	TRANSISTOR	
	Q7	2SC536SPA(G)	TRANSISTOR	
	or	2SC3311A(S)	TRANSISTOR	
	Q10	2SC3354	TRANSISTOR	
	D1	MTZ10D	ZENER DIODE	
	D6	1SS133	DIODE	
	D7	1SS133	DIODE	
	D8	1SS133	DIODE	
	R3	NRD187J-331NBU	RESISTOR	330Ω, 1/8W
	R4	NRD187J-472NBU	RESISTOR	4.7KΩ, 1/8W
	R5	NRD187J-151NBU	RESISTOR	150Ω, 1/8W
	R6	NRD187J-102NBU	RESISTOR	1KΩ, 1/8W
	R7	NRD187J-471NBU	RESISTOR	470Ω, 1/8W
	R8	NRD187J-561NYU	RESISTOR	560Ω, 1/8W
	R9	NRD187J-331NBU	RESISTOR	330Ω, 1/8W
	R10	NRD187J-470NBU	RESISTOR	47Ω, 1/8W
	R11	NRD187J-220NBU	RESISTOR	22Ω, 1/8W
	R17	NRD187J-562NBU	RESISTOR	5.6KΩ, 1/8W
	R18	NRD187J-332NBU	RESISTOR	3.3KΩ, 1/8W
	R19	NRD187J-222NBU	RESISTOR	2.2KΩ, 1/8W
	R20	NRD187J-222NBU	RESISTOR	2.2KΩ, 1/8W
	R21	QVZ3518-472	V RESISTOR, RF AGC	4.7KΩ
	R22	NRD187J-824NBU	RESISTOR	820KΩ, 1/8W
	R24	NRD187J-102NBU	RESISTOR	1KΩ, 1/8W
	R25	NRD187J-821NBU	RESISTOR	820Ω, 1/8W
	R26	NRD187J-104NBU	RESISTOR	100KΩ, 1/8W
	R27	NRD187J-104NBU	RESISTOR	100KΩ, 1/8W
	R28	NRD187J-104NBU	RESISTOR	100KΩ, 1/8W
	R31	NRD187J-222NBU	RESISTOR	2.2KΩ, 1/8W
	R33	NRD187J-223NBU	RESISTOR	22KΩ, 1/8W
	R34	NRD187J-470NBU	RESISTOR	47Ω, 1/8W
	R35	NRD187J-561NBU	RESISTOR	560Ω, 1/8W
	R36	NRD187J-561NBU	RESISTOR	560Ω, 1/8W
	R37	NRD187J-271NBU	RESISTOR	270Ω, 1/8W
	R38	NRD187J-122NYU	RESISTOR	1.2KΩ, 1/8W
	R39	NRD187J-152NBU	RESISTOR	1.5KΩ, 1/8W
	R40	QVZ3518-682	V RESISTOR, COLOR LEVEL	6.8KΩ
	R41	NRD187J-471NBU	RESISTOR	470Ω, 1/8W
	R45	NRD187J-471NBU	RESISTOR	470Ω, 1/8W
	R46	NRD187J-104NBU	RESISTOR	100KΩ, 1/8W
	R47	NRD187J-103NBU	RESISTOR	10KΩ, 1/8W
	R48	NRD187J-562NBU	RESISTOR	5.6KΩ, 1/8W
	R49	NRD187J-103NBU	RESISTOR	10KΩ, 1/8W
	R50	NRD187J-471NBU	RESISTOR	470Ω, 1/8W
	R51	NRD187J-223NBU	RESISTOR	22KΩ, 1/8W
	R52	NRD187J-223NBU	RESISTOR	22KΩ, 1/8W
	R53	NRD187J-103NBU	RESISTOR	10KΩ, 1/8W
	R54	NRD187J-562NBU	RESISTOR	5.6KΩ, 1/8W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R57	NRD187J-123NBU	RESISTOR	12KΩ, 1/8W
	R60	NRD187J-680NBU	RESISTOR	68Ω, 1/8W
	R61	NRD187J-331NBU	RESISTOR	330Ω, 1/8W
	R62	NRD187J-472NBU	RESISTOR	4.7KΩ, 1/8W
	R63	NRD187J-101NBU	RESISTOR	100Ω, 1/8W
	R64	NRD187J-561NBU	RESISTOR	560Ω, 1/8W
	R65	NRD187J-151NBU	RESISTOR	150Ω, 1/8W
	R66	NRD187J-470NYU	RESISTOR	47Ω, 1/8W
	R71	QRD161J-271	RESISTOR	270Ω, 1/6W
	R72	QRD161J-271	RESISTOR	270Ω, 1/6W
	R73	NRD187J-331NBU	RESISTOR	330Ω, 1/8W
	C2	NCT02CH-3R3NBR	CAPACITOR	3.3PF, 160V
	C3	QCT25CH-750	CAPACITOR	75PF
	C4	NCT02CH-3R3NBR	CAPACITOR	3.3PF, 160V
	C5	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C6	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C7	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C8	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C9	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C10	QETC1CM-336	E CAPACITOR	33μF, 16V
	C11	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C13	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C14	PU57601-474ME	E CAPACITOR	0.47μF, 16V
	C15	QETC1CM-336	E CAPACITOR	33μF, 16V
	C16	NCF71EZ-223NBR	CAPACITOR	0.022μF, 25V
	C17	NCF71EZ-223NBR	CAPACITOR	0.022μF, 25V
	C18	QFV71HJ-104	M CAPACITOR	0.1μF, 50V
	C19	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C20	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C21	NCB71HK-101NBR	CAPACITOR	100PF, 50V
	C22	QETC1HM-105	E CAPACITOR	1μF, 50V
	C24	QETC1HM-105	E CAPACITOR	1μF, 50V
	C25	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C26	QFN31HJ-123	M CAPACITOR	0.012μF, 50V
	C27	QETC1HM-474	E CAPACITOR	0.47μF, 50V
	C28	NCT02CH-100NBR	CAPACITOR	10PF, 160V
	C29	NCS71HJ-330NBR	CAPACITOR	33PF, 50V
	C30	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C31	QETC1HM-335	E CAPACITOR	3.3μF, 50V
	C32	NCF71EZ-223NBR	CAPACITOR	0.022μF, 25V
	C33	QETC1HM-474	E CAPACITOR	0.47μF, 50V
	C39	NCB71HK-102NYR	CAPACITOR	0.001μF, 50V
	C41	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C42	QCT25CH-680	CAPACITOR	68PF
	C43	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C44	NCT02CH-1R0NYR	CAPACITOR	1PF, 160V
	C45	QCT25HH-121	CAPACITOR	120PF
	C46	NCT02CH-5R6NBR	CAPACITOR	5.6PF, 160V
	C50	QETC1CM-336	E CAPACITOR	33μF, 16V
	L2	PU60025-R68	COIL	0.68μH
	L3	PU60025-1R0	COIL	1.0μH
	L4	PU54223-150K	PEAKING COIL	15μH
	L5	PU54223-270J	PEAKING COIL	27μH
	L6	PU54223-470J	PEAKING COIL	47μH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	CF1	PU58558-Z	CERAMIC FILTER, 4.5MHz
	or	PU58558	CERAMIC FILTER
	or	PU60774-Z	CERAMIC FILTER
	CF3	PU59039	CERAMIC FILTER, 4.5MHz
	CF4	PU61026	CERAMIC FILTER, 5.5/5.75MHz
	SAW1	PU36386-2	SAW FILTER
	T1	PU60042-2	COIL
	T2	PU60027-01-01	IF. TRANSFORMER, VCO (45.75MHz)
	T3	PU60028	IF. TRANSFORMER, AFC (45.75MHz)
	T4	PU60104	IF. TRANSFORMER, FM DET (4.5MHz)
	T5	PU55184	IF. TRANSFORMER, S. DET (15.74MHz)
	T6	PU60548	COIL
	T7	PU60258-2	COIL
	T8	PU60264	COIL(2FH)

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12. TUNER CTL BOARD ASSEMBLY ⟨08⟩

	PWBA	PB10106J	TUNER CONTROL BOARD ASSY	
⚠	TNR1	PU36419-2-1	TUNER	
	IC1	TD6358P	IC	
	Q1	2SC3311A(S)	TRANSISTOR	
	or	2SC1740S(S)	TRANSISTOR	
	Q3	2SC1317(RS)	TRANSISTOR	
	Q5	2SA933S(RS)	TRANSISTOR	
	or	2SA1309R,S	TRANSISTOR	
	Q6	2SA933S(RS)	TRANSISTOR	
	or	2SA1309R,S	TRANSISTOR	
	Q7	2SA933S(RS)	TRANSISTOR	
	or	2SA1309R,S	TRANSISTOR	
	Q8	2SA933S(RS)	TRANSISTOR	
	or	2SA1309R,S	TRANSISTOR	
	Q13	2SC3399	TRANSISTOR	
	or	DTC144ES	TRANSISTOR	
	D1	HZ30-2L	ZENER DIODE	
	D2	E-452-2-T2	DIODE	
	D4	1SS136	DIODE	
	D5	1SS133	DIODE	
	R1	NRD187J-333NBU	RESISTOR	33KΩ, 1/8W
	R2	NRD187J-153NBU	RESISTOR	15KΩ, 1/8W
	R3	NRD187J-121NBU	RESISTOR	120Ω, 1/8W
	R7	NRD187J-221NBU	RESISTOR	220Ω, 1/8W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R8	NRD187J-473NBU	RESISTOR	47KΩ, 1/8W
	R9	NRD187J-473NBU	RESISTOR	47KΩ, 1/8W
	R10	NRD187J-473NBU	RESISTOR	47KΩ, 1/8W
	R11	NRD187J-473NBU	RESISTOR	47KΩ, 1/8W
	R14	NRD187J-102NBU	RESISTOR	1KΩ, 1/8W
	R15	NRD187J-102NBU	RESISTOR	1KΩ, 1/8W
	R16	NRD187J-102NBU	RESISTOR	1KΩ, 1/8W
	R19	NRD187J-102NBU	RESISTOR	1KΩ, 1/8W
	R22	NRD187J-184NBU	RESISTOR	180KΩ, 1/8W
	R23	NRD187J-750NBU	RESISTOR	75Ω, 1/8W
	R25	NRD187J-103NBU	RESISTOR	10KΩ, 1/8W
	R38	NRD187J-103NBU	RESISTOR	10KΩ, 1/8W
	C1	QFN31HK-223	M CAPACITOR	0.022μF, 50V
	C2	QFV71HJ-474	TF CAPACITOR	0.47μF, 50V
	or	QFZ9011-474Z	MM CAPACITOR	0.47μF
	C3	QETC1HM-106	E CAPACITOR	10μF, 50V
	C4	QETC1CM-106	E CAPACITOR	10μF, 16V
	C5	QETC1CM-336	E CAPACITOR	33μF, 16V
	C7	NCS71HJ-270NBR	CAPACITOR	27PF, 50V
	C8	NCS71HJ-270NBR	CAPACITOR	27PF, 50V
	C9	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C10	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C11	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C13	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C14	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C15	QEK61AM-336	E CAPACITOR	33μF, 10V
	C16	NCY71CM-103NBR	CAPACITOR	0.01μF, 16V
	C26	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C27	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C30	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C38	NCB71HK-102NBR	CAPACITOR	0.001μF, 50V
	C46	QCSB1HJ-100	CAPACITOR	10PF, 50V
	L5	PU59152-680J	COIL	68μH
⚠	X1	PU60029	CRYSTAL RESONATOR	
	HD1	PU36378	HOLDER	
	SLD1	PU36374-01-01	SHIELD CASE	
	SLD2	PU36375	SHIELD COVER	
	SLD3	PU36376	SHIELD PLATE	
	WR1	PW30401-AF09T	COAXIAL CORD	
	WR2	PW30401-AB14T	COAXIAL CORD	
	CN1	PU58844-2	CAP HOUSING	
	CN2	PU58844-4	CAP HOUSING	
	CN3	PU58844-6	CAP HOUSING	
	CN5	PU58844-3	CAP HOUSING	

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13. HEAT SINK BOARD ASSEMBLY ⟨09⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB30068A-01	HEAT SINK BOARD ASSY	
	IC3	UPC7812H	IC	
	IC4	STR90050	IC	
	IC5	STR90120	IC	
	D8	FMM-22S	DIODE	
	D9	FMM-22S	DIODE	
	R5	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R6	QRD161J-224	RESISTOR	220KΩ, 1/6W
	C14	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C15	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C16	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C17	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C18	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C19	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C20	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C21	QET61EM-336	E CAPACITOR	33μF, 25V
	C22	QET61EM-336	E CAPACITOR	33μF, 25V
	C23	QET61EM-336	E CAPACITOR	33μF, 25V
⚠	HS1	PQ32334	HEAT SINK(1)	
	SCW1	SPSP3008M	SCREW, X5	

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14. JOG/TIMER BOARD ASSEMBLY ⟨11⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB20233B-01	JOG/TIMER BOARD ASSY	
	IC1	UPC339C	IC	
	IC2	MN12C25D	IC	
	IC3	M5278L56	IC	
⚠	IC4	UPD75216ACW-270	IC	
	IC5	IC-PST523H-2	IC	
	IC101	UPD75104CW-136	IC	
	IC102	IC-PST529D-2	IC	
	Q1	2SC3311A(RS)	TRANSISTOR	
	Q2	DTC114ES	TRANSISTOR	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q101	2SA1309S	TRANSISTOR	
	Q102	DTC144ES	TRANSISTOR	
	Q103	DTC144ES	TRANSISTOR	
	Q104	DTC144ES	TRANSISTOR	
	Q105	2SC1740S(S)	TRANSISTOR	
	D1	1SS133	DIODE	
	D2	1SS133	DIODE	
	D3	RD8.2ES-T1B2	ZENER DIODE	
	or	HZS8.2EB2TJ	ZENER DIODE	
	D4	1SS133	DIODE	
	D5	RD9.1ES-T1B2	ZENER DIODE	
	D11	1SS133	DIODE	
	D14	1SS133	DIODE	
	D101	1SS133	DIODE	
	D102	1SS133	DIODE	
	R1	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R2	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R3	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R4	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R5	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R6	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R7	QRD161J-332	RESISTOR	3.3KΩ, 1/6W
	R8	QRD161J-562	RESISTOR	5.6KΩ, 1/6W
	R9	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R10	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R11	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R12	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R13	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R14	QRD161J-823	RESISTOR	82KΩ, 1/6W
	R15	QRD161J-184	RESISTOR	180KΩ, 1/6W
	R16	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R17	QRD161J-471	RESISTOR	470Ω, 1/6W
	R18	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R19	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R20	QRD161J-682	RESISTOR	6.8KΩ, 1/6W
	R21	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R22	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R23	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R24	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R25	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R26	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R27	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R28	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R29	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R30	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R31	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R32	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R33	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R34	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R35	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R36	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R37	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R38	QRD161J-103	RESISTOR	10KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R39	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R40	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R41	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R42	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R43	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R44	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R45	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R46	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R47	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R48	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R50	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R51	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R52	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R53	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R54	QRD161J-151	RESISTOR	150Ω, 1/6W
	R55	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R56	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R101	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R102	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R103	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R104	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R105	QRD161J-563	RESISTOR	56KΩ, 1/6W
	R106	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R107	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R108	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R109	QRD161J-474	RESISTOR	470KΩ, 1/6W
	R110	QRD161J-334	RESISTOR	330KΩ, 1/6W
	R111	QRD161J-334	RESISTOR	330KΩ, 1/6W
	R112	QRD161J-221	RESISTOR	220Ω, 1/6W
	R114	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R115	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R116	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R117	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R118	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R119	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R120	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R121	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R122	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R123	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R124	QRD161J-362	RESISTOR	3.6KΩ, 1/6W
	R125	QRD161J-362	RESISTOR	3.6KΩ, 1/6W
	R126	QRD161J-362	RESISTOR	3.6KΩ, 1/6W
	R127	QRD161J-362	RESISTOR	3.6KΩ, 1/6W
	R128	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R129	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R130	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R131	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R132	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R133	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R134	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R135	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R136	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R137	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R138	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R139	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R140	QRD161J-472	RESISTOR	4.7KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R141	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R142	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R143	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R144	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R145	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R146	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R147	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R148	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R149	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R150	QRD161J-203	RESISTOR	20KΩ, 1/6W
	R151	QRD161J-362	RESISTOR	3.6KΩ, 1/6W
	R152	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R153	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R154	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R155	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R156	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R157	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R158	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R159	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R160	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R161	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R162	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R163	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R164	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R165	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R166	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R167	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R168	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R169	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R170	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R171	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R172	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R173	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R174	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R175	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R177	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R180	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R181	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	RA1	EXB-P87224M	RESISTOR ARRAY	
	RA101	EXB-P88563M	NETWORK RESISTOR	
	C1	QEA40HZ-105	E CAPACITOR (DOUBLE)	1μF, 5.5V
	C2	QETC0JM-336	E CAPACITOR	33μF, 6.3V
	C4	QETC1CM-336	E CAPACITOR	33μF, 16V
	C5	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C6	PU57672-200	TRIMMER CAPACITOR	20PF
	C7	QCT30CH-120	CAPACITOR	12PF
	C10	QCC11CJ-473	CAPACITOR	0.047μF, 16V
	C11	QETC1CM-106	E CAPACITOR	10μF, 16V
	C12	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C102	QEK61HM-105	E CAPACITOR	1μF, 50V
	C105	QET61EM-336	E CAPACITOR	33μF, 25V
	C106	QCVB1CM-103	CAPACITOR	0.01μF, 16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	CF101	PU59545	RESONATOR
⚠	X1	PU60226-2	CRYSTAL RESONATOR
	TP1	PU56008	TEST-PIN, X4 (TP1-4)
	TP101	PU56008	TEST-PIN
	CN1	PU58844-5	CAP HOUSING
	CN2	PU59555-10	CAP HOUSING
	CN3	PU59555-6	CAP HOUSING
	CN4	PU60727-16	CONNECTOR
	CN5	PU60711-120	FFC CONNECTOR
	CN6	PU58844-6	CAP HOUSING
	CN7	PU58844-8	CAP HOUSING
	CN8	PU59933-17	WIRE TRAP
	CN9	PU59933-17	WIRE TRAP
⚠	CP1	ICP-N10	CIRCUIT PROTECTOR

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15. AUDIO CONTROL HEAD BOARD ⟨12⟩

	PWB1	PB40017	A/C HEAD BOARD
	TP33	PU45908	TEST PIN, X2 (TP33,43)
	CN1	PU60730-108	CAP HOUSING
	CN2	PU60730-102	CAP HOUSING

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16. FRONT BOARD ASSY ⟨10⟩⟨13⟩⟨16⟩⟨17⟩⟨18⟩

	PWBA	PB10132B	FRONT BOARD ASSY

— JUNCTION SECTION ⟨10⟩ —

	PWBA2	PB10132A2-02	JUNCTION BOARD ASSY ⟨10⟩
	CN10	PU58844-103	CAP HOUSING
	CN11	PU58844-106	CAP HOUSING
	CN12	PU60794-115	FPC CONNECTOR
	or	PU60566-115	FPC CONNECTOR
	CN13	PU60794-115	FPC CONNECTOR
	or	PU60566-115	FPC CONNECTOR
	CN14	PU60711-120	FFC CONNECTOR

— FDP SECTION ⟨13⟩ —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA1	PB10132B1	FDP BOARD ASSY ⟨13⟩
	IC1	MSC1146BRS	IC
	IC2	MB88724B-124	IC
	IC3	M50255P	IC
	IC4	UPD4314C-55	IC
	or	UPD4314C-45	IC
	IC5	M50253P	IC
	IC201	SBX1492-01	INFRARED RAYS UNIT
	Q1	2SA1309QRS	TRANSISTOR
	Q2	2SC3311A	TRANSISTOR
	Q3	2SA1309QRS	TRANSISTOR
	Q4	2SC3311A	TRANSISTOR
	Q15	2SA1309QRS	TRANSISTOR
	Q16	2SC3311A	TRANSISTOR
	Q17	2SA1309QRS	TRANSISTOR
	Q18	2SC3311A	TRANSISTOR
	Q19	2SB1030AR, S	TRANSISTOR
	Q20	DTA124ES	TRANSISTOR
	Q21	DTA124ES	TRANSISTOR
	Q22	DTC124ES	TRANSISTOR
	Q23	DTC124ES	TRANSISTOR
	Q24	DTC124ES	TRANSISTOR
	Q25	DTA124ES	TRANSISTOR
	D1	1SS133	DIODE
	D2	1SS133	DIODE
	D3	RD7.5ES-T1B3	ZENER DIODE
	D4	RD2.0ES-T1B2	ZENER DIODE
	D101	1SS133	DIODE
	D203	GL-3EG43	LE DIODE, S-VHS
	D204	GL-3EG43	LE DIODE, S-VHS
	D205	GL-3EG43	LE DIODE, S-VHS
	D206	SLR-34VC3F	LE DIODE, VIDEO
	D207	SLR-34MC3F	LE DIODE, PROCESSOR
	D211	SLR-34VC3F	LE DIODE, STEREO
	D212	SLR-34MC3F	LE DIODE, BIL (SAP)
	D213	SLR-34VC3F	LE DIODE, TEL (A.P)
	R1	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R2	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R3	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R4	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R5	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R6	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R7	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R8	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R29	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R30	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R31	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R32	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R33	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R34	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R35	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R36	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R37	QRD161J-560	RESISTOR 56Ω, 1/6W
	R38	QRD161J-104	RESISTOR 100KΩ, 1/6W
	R39	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R40	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R41	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R42	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R43	QRD161J-560	RESISTOR 56Ω, 1/6W
	R44	QRD161J-104	RESISTOR 100KΩ, 1/6W
	R45	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R46	QRD161J-153	RESISTOR 15KΩ, 1/6W
	R47	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R48	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R49	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R50	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R51	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R52	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R53	QRD161J-101	RESISTOR 100Ω, 1/6W
	R55	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R56	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R57	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R58	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R59	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R61	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R62	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R63	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R64	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R65	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R66	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R81	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R82	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R83	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R84	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R85	QRD167J-472	RESISTOR 4.7KΩ, 1/6W
	R86	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R87	QRD167J-102	RESISTOR 1KΩ, 1/6W
	R201	QRD161J-151	RESISTOR 150Ω, 1/6W
	R202	QRD161J-471	RESISTOR 470Ω, 1/6W
	R203	QRD161J-331	RESISTOR 330Ω, 1/6W
	R204	QRD161J-331	RESISTOR 330Ω, 1/6W
	R205	QRD161J-331	RESISTOR 330Ω, 1/6W
	R206	QRD161J-331	RESISTOR 330Ω, 1/6W
	R207	QRD161J-331	RESISTOR 330Ω, 1/6W
	R210	QRD161J-331	RESISTOR 330Ω, 1/6W
	R405	PU59375	V RESISTOR, HEAD PHONE
	RA1	QRB047J-333	RESISTOR ARRAY

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	RA2	RMLS9J333	NETWORK RESISTOR	
	RA3	QRB057J-332	NETWORK RESISTOR	
	RA4	RMLS8J333	RESISTOR ARRAY	
	RA5	QRB037J-103	RESISTOR ARRAY	
	C1	QER60JM-226	E CAPACITOR	22μF, 6.3V
	C2	QER60JM-476	E CAPACITOR	47μF, 6.3V
	C3	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C4	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C5	QER60JM-226	E CAPACITOR	22μF, 6.3V
	C6	QER61CM-106	E CAPACITOR	10μF, 16V
	C7	QFJ41HJ-333	M CAPACITOR	0.033μF, 50V
	C8	QFJ41HJ-223	M CAPACITOR	0.022μF, 50V
	C9	QER61HM-106	E CAPACITOR	10μF, 50V
	C10	QEK41HM-336	E CAPACITOR	33μF, 50V
	C11	QER61HM-225	E CAPACITOR	2.2μF, 50V
	C12	QER61HM-225	E CAPACITOR	2.2μF, 50V
	C14	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C15	QEK60JM-336	E CAPACITOR	33μF, 6.3V
	C16	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C17	QEK60JM-336	E CAPACITOR	33μF, 6.3V
	C18	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	C19	QCBB1HJ-561	CAPACITOR	560PF, 50V
⚠	C20	QCBB1HJ-181	CAPACITOR	180PF, 50V
⚠	C21	QCBB1HJ-101	CAPACITOR	100PF, 50V
	C101	QCC11EJ-104	CAPACITOR	0.1μF, 25V
	C102	QCC11EJ-393	CAPACITOR	0.039μF, 25V
	C103	QCC11EK-223	CAPACITOR	0.022μF, 25V
	C104	QCC31EJ-223	CAPACITOR	0.022μF, 25V
	C105	QCC31EJ-104	CAPACITOR	0.1μF, 25V
	C106	QEK61EM-335	E CAPACITOR	3.3μF, 25V
	L102	PU59152-101J	PEAKING COIL	100μH
⚠	CF1	PU59545	RESONATOR	
	S4	PU57550	TACT SWITCH, H.S ERASE	
	S7	PU57550	TACT SWITCH, I	
	S10	PU57550	TACT SWITCH, INPUT SELECT	
	S12	PU57550	TACT SWITCH, REC MUTE	
	S15	PU57550	TACT SWITCH, Q	
	S18	PU57550	TACT SWITCH, AUDIO MONITOR	
	S20	PU57550	TACT SWITCH, FRAME REC	
	S23	PU57550	TACT SWITCH, C.LEVEL(+)	
	S26	PU57550	TACT SWITCH, AUDIO MIX	
	S31	PU57550	TACT SWITCH, C.LEVEL(−)	
	S65	PU57550	TACT SWITCH, CHECK	
	S402	PU59092-6	SWITCH, INDICATOR	
	S403	PU54440	SWITCH, ALC ON/OFF	
	S404	PU54440	SWITCH, AC ON-LINE	
	S406	PU54440	SWITCH, NR ON/OFF	
	S407	PU59092-6	SWITCH, F.SERVO	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	FDP1	PU59998	FLUORESCENT DISPLAY PANEL
	HD1	PQ43324	LED HOLDER
	HD2	PQ32257	FDP HOLDER(R)
	HD3	PQ32256	FDP HOLDER(L)
	SLD1	PQ43325	SHADE
	SLD2	PU56919	RASTER METAL
	SPC1	PU60732	PCB SPACER
	CN1	PU59513-10	CAP HOUSING
	CN2	PU59513-2	CAP HOUSING
	CN3	PU59513-6	CAP HOUSING
	CN4	PU59513-7	CAP HOUSING
	CN5	PU59513-10	CAP HOUSING
	CN6	PU58844-104	CAP HOUSING
	CN8	PW30117-E0CG49H	PARALLEL WIRE
	CN9	PW30117-E0CG49H	PARALLEL WIRE

— RCA/JACK SECTION ⟨16⟩ —

REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA3	PB10132A3-02	RCA/JACK BOARD ASSY ⟨16⟩	
R90	QRD161J-223	RESISTOR	22KΩ, 1/6W
R91	QRD161J-750	RESISTOR	75Ω, 1/6W
R92	QRD161J-750	RESISTOR	75Ω, 1/6W
R93	QRD161J-750	RESISTOR	75Ω, 1/6W
BKT1	PQ43327	BRACKET	
SCW1	SDSA2606Z	SCREW, X2	
SLD1	PQ43719	SHIELD PLATE	
TB1	PU60586	JACK BOARD ASSY	
J401	PU58356-2	JACK(HEADPHONE)	
J402	PU58355-2	MIC JACK	
J403	PU58355-2	MIC JACK	
J404	PU60091	DIN CONNECTOR	
CN15	PU59513-4	CAP HOUSING	
CN16	PU59513-4	CAP HOUSING	
CN17	PU59513-8	CAP HOUSING	
CN18	PU59513-2	CAP HOUSING	

— POWER SW SECTION ⟨17⟩ —

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA4	PB10132A4-02	POWER SW BOARD ASSY ⟨17⟩
D201	SLR-37VR3F	LE DIODE, POWER
D202	SLR-37VR3F	LE DIODE, POWER

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	S2	PU57551	TACT SWITCH, POWER
	HD1	PQ40795-5-2	LED HOLDER, X2

— LED SECTION ⟨18⟩ —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA5	PB10132A5-02	LED BOARD ASSY ⟨18⟩
	D208	SLR-34MC3F	LE DIODE, REW
	D209	SLR-34DC3F	LE DIODE, PAUSE
	D210	SLR-34MC3F	LE DIODE, FF
	HD1	PU56940-1-2	LED HOLDER
	CN20	PU59555-4	CAP HOUSING

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17. DEMODULATOR BOARD ASSEMBLY ⟨14⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	PB20129E	DEMODULATOR BOARD ASSY
	IC1	CX20112	IC
	IC2	CXA1011P	IC
	IC3	CXA1011P	IC
	IC4	M5239L	IC
	Q1	2SD1468S(SE)	TRANSISTOR
	Q2	2SD1468S(SE)	TRANSISTOR
	Q3	2SD1468S(SE)	TRANSISTOR
	Q4	DTA114ES	TRANSISTOR
	Q5	DTA144WS	TRANSISTOR
⚠	Q7	2SD1450S,T	TRANSISTOR
	Q8	2SC1740S(RS)	TRANSISTOR
	Q9	2SC1740S(RS)	TRANSISTOR
	Q10	2SC1740S(RS)	TRANSISTOR
	D1	MTZ10D	ZENER DIODE
	D2	MTZ6.8B	ZENER DIODE
	D3	1SS133	DIODE
	D8	1SS133	DIODE
	D9	1SS133	DIODE
	D12	1SS133	DIODE
	D13	1SS133	DIODE
	D16	1SS133	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	R1	QRD161J-822	RESISTOR 8.2KΩ, 1/6W
	R2	QRV144F-1203AY	CMF RESISTOR 120KΩ, 1/4W
	R3	QVZ3531-333	V RESISTOR, ST FILTER ADJ 33KΩ
	R4	QRV144F-1203AY	CMF RESISTOR 120KΩ, 1/4W
	R5	QVZ3531-333	V RESISTOR, SAP FILTER ADJ 33KΩ
	R6	QRD161J-154	RESISTOR 150KΩ, 1/6W
	R11	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R13	QRD161J-181	RESISTOR 180Ω, 1/6W
	R14	QRD161J-181	RESISTOR 180Ω, 1/6W
	R15	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R16	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R17	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R18	QVZ3518-472	V RESISTOR, SAP LEVEL 4.7KΩ
	R19	QVZ3518-103	V RESISTOR, SEPARATION 10KΩ
	R20	QRD161J-362	RESISTOR 3.6KΩ, 1/6W
	R21	QRD161J-154	RESISTOR 150KΩ, 1/6W
	R22	QVZ3518-104	V RESISTOR, L+R LEVEL 100KΩ
	R23	QVZ3531-332	V RESISTOR, ST VCO ADJ 3.3KΩ
	R24	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R25	QRD161J-561	RESISTOR 560Ω, 1/6W
	R26	QVZ3518-103	V RESISTOR, L−R LEVEL 10KΩ
	R27	QRV144F-5603AY	CMF RESISTOR 560KΩ, 1/4W
	R28	QRV144F-2322AY	CMF RESISTOR 23.2KΩ, 1/4W
	R29	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R30	QRD161J-182	RESISTOR 1.8KΩ, 1/6W
	R31	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R32	QRD161J-361	RESISTOR 360Ω, 1/6W
	R33	QRD161J-301	RESISTOR 300Ω, 1/6W
	R34	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R35	QRD161J-752	RESISTOR 7.5KΩ, 1/6W
	R36	QVZ3518-682	V RESISTOR, SPECTRUM 6.8KΩ
	R37	QRV144F-5603AY	CMF RESISTOR 560KΩ, 1/4W
	R38	QRV144F-2322AY	CMF RESISTOR 23.2KΩ, 1/4W
	R39	QRD161J-272	RESISTOR 2.7KΩ, 1/6W
	R40	QRD161J-561	RESISTOR 560Ω, 1/6W
	R41	QRD161J-153	RESISTOR 15KΩ, 1/6W
	R42	QRD161J-361	RESISTOR 360Ω, 1/6W
	R43	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R44	QRD161J-752	RESISTOR 7.5KΩ, 1/6W
	R45	QRD161J-272	RESISTOR 2.7KΩ, 1/6W
	R46	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R47	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R48	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R49	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R50	QRD161J-332	RESISTOR 3.3KΩ, 1/6W
	R53	QRD182J-271	RESISTOR 270Ω, 1/8W
	R54	QRD161J-301	RESISTOR 300Ω, 1/6W
	R55	QVZ3518-472	V RESISTOR, SAP LEVEL 4.7KΩ
	R56	QRD161J-683	RESISTOR 68KΩ, 1/6W
	R57	QRD161J-183	RESISTOR 18KΩ, 1/6W
	R58	QRD161J-221	RESISTOR 220Ω, 1/6W
	R59	QRD161J-104	RESISTOR 100KΩ, 1/6W
	R60	QRD161J-104	RESISTOR 100KΩ, 1/6W
	R61	QRD161J-153	RESISTOR 15KΩ, 1/6W
	R62	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R63	QRD161J-125	RESISTOR 1.2MΩ, 1/6W
	R64	QRD161J-472	RESISTOR 4.7KΩ, 1/6W
	R70	QRD161J-103	RESISTOR 10KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R73	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R74	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R76	QRV144F-1002AY	CMF RESISTOR	10KΩ, 1/4W
	R78	QRD161J-822	RESISTOR	8.2KΩ, 1/6W
	R79	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R201	QRD161J-333	RESISTOR	33KΩ, 1/6W
	C1	QEK61CM-106	E CAPACITOR	10μF, 16V
	C2	QCC11EK-473	CAPACITOR	0.047μF, 25V
	C3	QEK61CM-106	E CAPACITOR	10μF, 16V
	C4	QCC11EK-223	CAPACITOR	0.022μF, 25V
	C5	QEK61HM-105	E CAPACITOR	1μF, 50V
	C6	QEK61HM-105	E CAPACITOR	1μF, 50V
	C8	QFL31HJ-472	M CAPACITOR	0.0047μF, 50V
	C10	QEK61CM-106	E CAPACITOR	10μF, 16V
	C11	QEK61CM-106	E CAPACITOR	10μF, 16V
	C12	QFV71HJ-223	TF CAPACITOR	0.022μF, 50V
	C13	QEK61CM-106	E CAPACITOR	10μF, 16V
	C14	PU58285-182JZ	PP CAPACITOR	0.0018μF
	C15	QEK61HM-105	E CAPACITOR	1μF, 50V
	C16	QEK61EM-475	E CAPACITOR	4.7μF, 25V
	C17	QEK61CM-106	E CAPACITOR	10μF, 16V
	C18	QEK61CM-106	E CAPACITOR	10μF, 16V
	C19	QEK61CM-106	E CAPACITOR	10μF, 16V
	C20	QEE81CJ-335	TANTAL CAPACITOR	3.3μF, 16V
	C21	QEK61HM-105	E CAPACITOR	1μF, 50V
	C22	QEE81CJ-106	TANTAL CAPACITOR	10μF, 16V
	C23	QEK61HM-225	E CAPACITOR	2.2μF, 50V
	C24	QEK61CM-106	E CAPACITOR	10μF, 16V
	C25	QETC1CM-107	E CAPACITOR	100μF, 16V
	C26	QFL31HJ-472	M CAPACITOR	0.0047μF, 50V
	C27	QEK61HM-105	E CAPACITOR	1μF, 50V
	C28	QEN61CM-106	NP E CAPACITOR	10μF, 16V
	C29	QFV71HJ-223	TF CAPACITOR	0.022μF, 50V
	C30	QFV71HJ-104	TF CAPACITOR	0.1μF, 50V
	C31	QEK61HM-105	E CAPACITOR	1μF, 50V
	C32	QEK61CM-106	E CAPACITOR	10μF, 16V
	C33	QEE81CJ-335	TANTAL CAPACITOR	3.3μF, 16V
	C34	QEK61HM-105	E CAPACITOR	1μF, 50V
	C35	QEE81CJ-106	TANTAL CAPACITOR	10μF, 16V
	C36	QEK61HM-225	E CAPACITOR	2.2μF, 50V
	C37	QEK61CM-106	E CAPACITOR	10μF, 16V
	C38	QETC1CM-107	E CAPACITOR	100μF, 16V
	C39	QFL31HJ-152	M CAPACITOR	0.0015μF, 50V
	C41	QEN61CM-106	NP E CAPACITOR	10μF, 16V
	C42	QFV71HJ-223	TF CAPACITOR	0.022μF, 50V
	C43	QFV71HJ-104	TF CAPACITOR	0.1μF, 50V
	C44	QEK61HM-105	E CAPACITOR	1μF, 50V
	C45	QEK61CM-106	E CAPACITOR	10μF, 16V
	C46	QCSB1HJ-220	CAPACITOR	22PF, 50V
	C47	QETC1CM-107	E CAPACITOR	100μF, 16V
	C48	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C49	QCBB1HJ-221	CAPACITOR	220PF, 50V
	C50	QEK61HM-105	E CAPACITOR	1μF, 50V
	C51	QFL31HJ-102	M CAPACITOR	0.001μF, 50V
	C52	QCBB1HJ-331	CAPACITOR	330PF, 50V
	C58	QFV71HJ-123	TF CAPACITOR	0.012μF, 50V
	C59	QFV71HJ-123	TF CAPACITOR	0.012μF, 50V
	L1	PU60036-821K	COIL	820μH
	L2	PU60211	LOW PASS FILTER	
	L3	PU60211	LOW PASS FILTER	
	L4	PU53223-1R0H	COIL	1.0μH
	CN1	PU58844-6	CAP HOUSING	
	CN2	PU58844-3	CAP HOUSING	
	CN3	PU58844-2	CAP HOUSING	
	CN4	PU58844-2	CAP HOUSING	

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18. SUB OPERATION BOARD ASSEMBLY ⟨15⟩

PWBA	PB20234C	SUB OPERATION BOARD ASSY	
D21	1SS133	DIODE	
D22	1SS133	DIODE	
D23	1SS133	DIODE	
S5	PU57550	TACT SWITCH, START TIME	
S13	PU57550	TACT SWITCH, STOP TIME	
S21	PU57550	TACT SWITCH, SEARCH	
S28	PU57550	TACT SWITCH, SKIP	
S29	PU57550	TACT SWITCH, TITLE SET	
S36	PU57550	TACT SWITCH, STORE	
S37	PU57550	TACT SWITCH, TITLE REC	
S45	PU57550	TACT SWITCH, TIMER PROGRAM	
S50	PU57550	TACT SWITCH, CH (+)	
S52	PU57550	TACT SWITCH, TIMER	
S53	PU57550	TACT SWITCH, CLOCK ADJ	
S58	PU57550	TACT SWITCH, CH (−)	
S60	PU57550	TACT SWITCH, ON SCREEN	
S63	PU57550	TACT SWITCH, CANCEL	
S401	PU57908-2	SLIDE SWITCH, AFC	
S408	PU57955-2	SLIDE SWITCH, BAND	
CN1	PW30118-80CG46G	PARALLEL WIRE	

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19. JOG/SHUTTLE BOARD ASSEMBLY ⟨19⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PQ20642A-2	J/S UNIT ASSY	
	PWBA1	PB30069A	JOG/SHUTTLE BOARD ASSY	
	R1	QRD167J-221	RESISTOR	220Ω, 1/6W
	R2	QRD167J-201	RESISTOR	200Ω, 1/6W
	PS1	GP2S04C	P. INTERRUPTOR	
	PS2	GP2S04C	P. INTERRUPTOR	
	PS3	GP2S04C	P. INTERRUPTOR	
	BKT1	PQ32290A	COVER ASSY	
	BKT2	PQ32294A	JOG DISC ASSY	
	BKT3	PQ32292A	SHUTTLE DISC ASSY	

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20. MAIN OPERATION BOARD ASSEMBLY ⟨20⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB20235A-01	MAIN OPERATION ASSY	
	R401	PU60719-3	V RESISTOR, NORMAL TK	500KΩ
	R402	PU60719-2	V RESISTOR, PICTURE SHARP	20KΩ
	R403	PU60719-4	V RESISTOR, SLOW TK	250KΩ
	R404	PU60719	V RESISTOR, H. P LEVEL	20KΩ
	S1	PU57550	TACT SWITCH, STOP	
	S3	PU57550	TACT SWITCH, START	
	S8	PU57550	TACT SWITCH, NORMAL (L)	
	S9	PU57550	TACT SWITCH, REW	
	S11	PU57550	TACT SWITCH, ASSEMBLY	
	S14	PU57550	TACT SWITCH, VIDEO+HIFI	
	S16	PU57550	TACT SWITCH, NORMAL (R)	
	S17	PU57550	TACT SWITCH, FF	
	S19	PU57550	TACT SWITCH, REHEARSAL	
	S22	PU57550	TACT SWITCH, TAPE RETURN	
	S24	PU57550	TACT SWITCH, REC	
	S25	PU57550	TACT SWITCH, COUNTER RESET	
	S27	PU57550	TACT SWITCH, S-VHS	
	S30	PU57550	TACT SWITCH, BLACK FADE	
	S32	PU57550	TACT SWITCH, PLAY	
	S33	PU57550	TACT SWITCH, NUMBER	
	S35	PU57550	TACT SWITCH, MARK	
	S38	PU57550	TACT SWITCH, WHITE FADE	
	S39	PU57550	TACT SWITCH, MOSIC (−)	
	S40	PU57550	TACT SWITCH, PAUSE/STILL	
	S41	PU57550	TACT SWITCH, EJECT	
	S43	PU57550	TACT SWITCH, INDX	
	S46	PU57550	TACT SWITCH, TV/VIDEO	
	S47	PU57550	TACT SWITCH, MOSIC (+)	
	S48	PU57550	TACT SWITCH, IN	
	S49	PU57550	TACT SWITCH, EDIT	
	S51	PU57550	TACT SWITCH, ERASE	
	S54	PU57550	TACT SWITCH, PRE VOS	
	S56	PU57550	TACT SWITCH, OUT	
	S57	PU57550	TACT SWITCH, SP/EP	
	S59	PU57550	TACT SWITCH, CLOCK	
	S62	PU57550	TACT SWITCH, VOS	
	S64	PU57550	TACT SWITCH, I/O GO-TO	
	S66	PU57550	TACT SWITCH, E-E/SWAP	
	S67	PU57550	TACT SWITCH, PROCCESOR	
	WR1	PU60709	FPC WIRE	
	WR2	PU60709	FPC WIRE	
	CN1	PU60710-115	FPC CONNECTOR	
	CN2	PU60710-115	FPC CONNECTOR	

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21. REAR BOARD ASSEMBLY ⟨21⟩⟨22⟩⟨23⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB30070B	REAR PWB ASS'Y	
	BKT1	PQ43390	BRACKET (4)	
	ETH1	PQ43391	EARTH PLATE (1)	
	SCW1	SDSF2608Z	TAPPING SCREW, X2	
	SCW2	SDSF2608Z	TAPPING SCREW	
	SCW3	SDSF2608Z	TAPPING SCREW, X5	
	SCW4	SSSF2608M	SCREW, X4	
	SCW5	SDST2605Z	TAPPING SCREW	
	TB1	PQ20613-2-2	TERMINAL BOARD	

— REAR SECTION ⟨21⟩ —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	PB30070A1-01	REAR S BOARD ASSY ⟨21⟩	
	R1	QRD167J-750	RESISTOR	75Ω, 1/6W
	R2	QRD167J-750	RESISTOR	75Ω, 1/6W
	J1	PU60091	DIN CONNECTOR	
	J2	PU60091	DIN CONNECTOR	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	CN1	PU58844-104	CAP HOUSING
	CN2	PU58844-102	CAP HOUSING
	CN3	PU58844-102	CAP HOUSING

— TERMINAL SECTION 〈22〉 —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA2	PB30070A2-01	TERMINAL BOARD ASSY 〈22〉
	R3	QVZ3518-224	V RESISTOR, V LOCK 220KΩ
	R4	QRD167J-823	RESISTOR 82KΩ, 1/6W
	SW1	PU57908	SLIDE SWITCH, SWAP MODE
	or	PU58486-1-1	SLIDE SWITCH
	SW2	PU57908	SLIDE SWITCH, SEARCH MAX
	or	PU58486-1-1	SLIDE SWITCH
	J3	PU60452	MINI JACK
	J4	PU60452	MINI JACK
	J5	PU60452	MINI JACK
	J6	PU60452-2	MINI JACK
	CN4	PU58844-106	CAP HOUSING
	CN5	PU58844-105	CAP HOUSING

— RF CONVERTER SECTION 〈23〉 —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA3	PB30070B3	RF CONVERTER BOARD ASSY
⚠	RF1	PU60602	RF CONVERTER/SWITCH
	CN6	PU59513-4	CAP HOUSING

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22. VIDEO RF BOARD ASSEMBLY 〈30〉

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	PB20236A-04	VIDEO RF BOARD ASSY
	IC1	BA7036LS	IC
	IC2	UPC311C	IC
	IC3	PB20201A	RF MODULE
	IC4	PB20262A	S.DET MODULE
	IC5	BU4030B	IC
	Q1	2SB643R	TRANSISTOR
	Q2	2SA933S(RS)	TRANSISTOR
	Q3	2SA933S(RS)	TRANSISTOR
	Q5	2SC1740S(QRS)	TRANSISTOR
	Q7	DTA124ES	TRANSISTOR
	Q8	DTA124ES	TRANSISTOR
	Q9	2SA933S(RS)	TRANSISTOR
	Q10	2SC1740S(QRS)	TRANSISTOR
	Q11	DTC144ES	TRANSISTOR
	Q12	2SC1740S(QRS)	TRANSISTOR
	Q13	DTC144ES	TRANSISTOR
	Q14	2SC1740S(QRS)	TRANSISTOR
	Q15	DTC144ES	TRANSISTOR
	Q16	DTA124ES	TRANSISTOR
	Q17	DTA124ES	TRANSISTOR
	Q18	2SA933S(RS)	TRANSISTOR
	Q19	2SC1740S(QRS)	TRANSISTOR
	Q20	DTC144ES	TRANSISTOR
	Q21	2SC1740S(QRS)	TRANSISTOR
	Q22	2SC1740S(QRS)	TRANSISTOR
	Q23	DTC144ES	TRANSISTOR
	Q24	DTA124ES	TRANSISTOR
	Q25	DTA124ES	TRANSISTOR
	Q26	2SA933S(RS)	TRANSISTOR
	Q27	2SC1740S(QRS)	TRANSISTOR
	Q28	DTC144ES	TRANSISTOR
	Q29	2SC1740S(QRS)	TRANSISTOR
	Q30	DTC144ES	TRANSISTOR
	Q32	DTC144ES	TRANSISTOR
	Q33	DTC144ES	TRANSISTOR
	D1	1SS133	DIODE
	or	MA165	DIODE
	D3	1SS133	DIODE
	or	MA165	DIODE
	D4	1SS133	DIODE
	or	MA165	DIODE
	R1	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R2	QRD161J-622	RESISTOR 6.2KΩ, 1/6W
	R3	QRD161J-393	RESISTOR 39KΩ, 1/6W
	R4	QRD161J-562	RESISTOR 5.6KΩ, 1/6W
	R5	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R6	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R7	QRD161J-102	RESISTOR 1KΩ, 1/6W
	R8	QRD161J-121	RESISTOR 120Ω, 1/6W
	R9	QRD161J-473	RESISTOR 47KΩ, 1/6W
	R10	QRD161J-123	RESISTOR 12KΩ, 1/6W
	R11	QRD161J-681	RESISTOR 680Ω, 1/6W
	R12	QRD161J-122	RESISTOR 1.2KΩ, 1/6W
	R13	QRD161J-222	RESISTOR 2.2KΩ, 1/6W
	R15	QRD161J-682	RESISTOR 6.8KΩ, 1/6W
	R16	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R17	QVZ3518-223	V RESISTOR, DC OFF SET 22KΩ
	R19	QRD161J-103	RESISTOR 10KΩ, 1/6W
	R20	QRD161J-333	RESISTOR 33KΩ, 1/6W
	R21	QRD161J-223	RESISTOR 22KΩ, 1/6W
	R22	QRD161J-102	RESISTOR 1KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R23	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R24	QRD161J-391	RESISTOR	390Ω, 1/6W
	R25	QVZ3521-222	V RESISTOR, SP FREQ&CH BAL (CH2)	2.2KΩ
	R26	QVZ3521-222	V RESISTOR, SP FREQ&CH BAL (CH1)	2.2KΩ
	R27	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R28	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R29	QRD161J-561	RESISTOR	560Ω, 1/6W
	R30	QRD161J-561	RESISTOR	560Ω, 1/6W
	R31	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R32	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R33	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R34	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R35	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R36	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R37	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R38	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R39	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R40	QVZ3521-222	V RESISTOR, EP FREQ&CH BAL (CH1)	2.2KΩ
	R41	QVZ3521-222	V RESISTOR, EP FREQ&CH BAL (CH2)	2.2KΩ
	R42	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R43	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R44	QRD161J-561	RESISTOR	560Ω, 1/6W
	R45	QRD161J-561	RESISTOR	560Ω, 1/6W
	R46	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R47	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R48	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R49	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R50	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R51	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R52	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R53	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R54	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R56	QVZ3521-222	V RESISTOR, SP FREQ&CH BAL (CH1)	2.2KΩ
	R57	QVZ3521-222	V RESISTOR, EP FREQ&CH BAL (CH1)	2.2KΩ
	R58	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R59	QRD161J-333	RESISTOR	33KΩ, 1/6W
	R60	QRD161J-391	RESISTOR	390Ω, 1/6W
	R61	QRD161J-391	RESISTOR	390Ω, 1/6W
	R62	QRD161J-821	RESISTOR	820Ω, 1/6W
	R63	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R64	QRD161J-152	RESISTOR	1.5KΩ, 1/6W
	R65	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R66	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R67	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R69	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R70	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R71	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R73	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R74	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	R75	QRD161J-271	RESISTOR	270Ω, 1/6W
	R77	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R79	QRD161J-102	RESISTOR	1KΩ, 1/6W
	R80	QRD161J-391	RESISTOR	390Ω, 1/6W
	R81	QRD161J-331	RESISTOR	330Ω, 1/6W
	R82	QRD161J-222	RESISTOR	2.2KΩ, 1/6W
	R83	QRD161J-392	RESISTOR	3.9KΩ, 1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R101	QVZ3521-224	V RESISTOR, EP FWD SLOW TK	220KΩ
	R102	QVZ3521-224	V RESISTOR, EP REV SLOW TK	220KΩ
	R103	QVZ3521-105	V RESISTOR, SP FWD SLOW TK	1MΩ
	R104	QVZ3521-224	V RESISTOR, SP REV SLOW TK	220KΩ
	R105	QVZ3521-474	V RESISTOR, SP PB SW POINT	470KΩ
	R106	QVZ3521-104	V RESISTOR, SPX2 TK	100KΩ
	R107	QVZ3521-104	V RESISTOR, EPX2 TK	100KΩ
	R108	QVZ3521-154	V RESISTOR, EPX-1 TK	150KΩ
	R328	QRD161J-182	RESISTOR	1.8KΩ, 1/6W
	C1	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C2	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C3	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C4	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C5	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C6	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C7	QER40JM-476	E CAPACITOR	47μF, 6.3V
	C12	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C13	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C14	QCC31CJ-562	CAPACITOR	0.0056μF, 16V
	C15	QCBB1HJ-271	CAPACITOR	270PF, 50V
	C16	QCBB1HJ-151	CAPACITOR	150PF, 50V
	C17	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C18	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C19	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C20	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C21	QCSB1HJ-220	CAPACITOR	22PF, 50V
	C22	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C23	QCSB1HJ-330	CAPACITOR	33PF, 50V
	C25	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C26	QCSB1HJ-330	CAPACITOR	33PF, 50V
	C27	QCSB1HJ-390	CAPACITOR	39PF, 50V
	C28	QCSB1HJ-120	CAPACITOR	12PF, 50V
	C29	QCBB1HJ-820	CAPACITOR	82PF, 50V
	C30	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C31	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C32	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C33	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C34	QCSB1HJ-270	CAPACITOR	27PF, 50V
	C35	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C36	QCSB1HJ-360	CAPACITOR	36PF, 50V
	C37	QCSB1HK-3R3	CAPACITOR	3.3PF, 50V
	C38	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C39	QCSB1HJ-220	CAPACITOR	22PF, 50V
	C40	QCSB1HJ-390	CAPACITOR	39PF, 50V
	C41	QCSB1HJ-120	CAPACITOR	12PF, 50V
	C42	QCBB1HJ-820	CAPACITOR	82PF, 50V
	C43	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C44	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C45	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C46	QCBB1HJ-121	CAPACITOR	120PF, 50V
	C47	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C49	QCSB1HJ-360	CAPACITOR	36PF, 50V
	C50	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C51	QCSB1HJ-430	CAPACITOR	43PF, 50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C52	QCSB1HJ-100	CAPACITOR	10PF, 50V
	C54	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C55	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C56	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C57	QER60JM-476	E CAPACITOR	47μF, 6.3V
	C58	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C60	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C61	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C62	QETC1HM-104	E CAPACITOR	0.1μF, 50V
	C63	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C64	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C65	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C66	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C67	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C68	QCBB1HJ-121	CAPACITOR	120PF, 50V
	C69	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C70	QCSB1HK-5R6	CAPACITOR	5.6PF, 50V
	C71	QCSB1HJ-470	CAPACITOR	47PF, 50V
	C72	QCSB1HJ-150	CAPACITOR	15PF, 50V
	C76	QCSB1HJ-510	CAPACITOR	51PF, 50V
	C77	QCSB1HJ-220	CAPACITOR	22PF, 50V
	C79	QCSB1HJ-150	CAPACITOR	15PF, 50V
	C80	QCSB1HJ-270	CAPACITOR	27PF, 50V
	L1	PU59153-101K	PEAKING COIL	100μH
	L4	PU48530-102J	PEAKING COIL	1mH
	L5	PU59152-221J	PEAKING COIL	220μH
	L6	PU59153-101K	PEAKING COIL	100μH
	L7	PU59153-101K	PEAKING COIL	100μH
	L8	PU59153-101K	PEAKING COIL	100μH
	L9	PU48530-101K	PEAKING COIL	100μH
	L10	PU59152-560J	PEAKING COIL	56μH
	L11	PU59152-120J	PEAKING COIL	12μH
	L12	PU59152-220J	PEAKING COIL	22μH
	L13	PU59152-100J	PEAKING COIL	10μH
	L14	PU59152-221J	PEAKING COIL	220μH
	L15	PU48530-101K	PEAKING COIL	100μH
	L16	PU59152-560J	PEAKING COIL	56μH
	L17	PU59152-120J	PEAKING COIL	12μH
	L18	PU59152-220J	PEAKING COIL	22μH
	L19	PU59152-221J	PEAKING COIL	220μH
	L20	PU59152-100J	PEAKING COIL	10μH
	L21	PU48530-101K	PEAKING COIL	100μH
	L22	PU59152-100J	PEAKING COIL	10μH
	L24	PU59152-560J	PEAKING COIL	56μH
	L25	PU59152-330J	PEAKING COIL	33μH
	L26	PU59153-101K	PEAKING COIL	100μH
	L27	PU59153-101K	PEAKING COIL	100μH
	L28	PU59152-220J	PEAKING COIL	22μH
	LPF1	PU60128-3	LOW PASS FILTER	
	BPF1	PU60098	BAND PASS FILTER	
	CL1	PU59311-2	WIRE CLAMP	
	TP6	PU57545	TEST PIN, X7	
	TP31	PU56008	TEST-PIN, X3(TP31,32,34)	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	CN1	PU58844-2	CAP HOUSING
	CN2	PU58844-8	CAP HOUSING
	CN3	PU58844-6	CAP HOUSING
	CN4	PU58844-2	CAP HOUSING
	CN5	PU58844-2	CAP HOUSING
	CN6	PU58844-107	CAP HOUSING
	CN101	PU59555-13	CAP HOUSING

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23. UPPER DRUM BOARD ⟨41⟩

	PWB1	PDM3161	BOARD (UPPER DRUM), X2

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24. PRE/REC AMP BOARD ASSEMBLY ⟨43⟩

	PWBA	PB10133A-01	PRE/REC BOARD ASSY
	IC1	TA8609P	IC
	IC2	AN6392	IC
	IC3	AN6392	IC
	Q1	2SC2412K	TRANSISTOR
	Q2	2SC2412K	TRANSISTOR
	Q3	2SC2412K	TRANSISTOR
	Q4	2SC2412K	TRANSISTOR
	Q5	2SC2412K	TRANSISTOR
	Q6	2SC2412K	TRANSISTOR
	Q7	2SC2412K	TRANSISTOR
	Q8	2SC2412K	TRANSISTOR
	Q9	DTC144EK	TRANSISTOR
	Q10	2SC2412K	TRANSISTOR
	Q11	DTC144EK	TRANSISTOR
	Q12	DTC144EK	TRANSISTOR
	Q13	DTC144EK	TRANSISTOR
	Q14	2SC2412K	TRANSISTOR
	Q15	DTC144EK	TRANSISTOR
	Q16	DTA124EK	TRANSISTOR
	Q17	DTC144EK	TRANSISTOR
	Q18	2SA1037K	TRANSISTOR
	Q19	2SA1037K	TRANSISTOR
	Q20	DTC144EK	TRANSISTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q21	DTC144EK	TRANSISTOR	
	Q22	DTA124EK	TRANSISTOR	
	Q23	DTC144EK	TRANSISTOR	
	Q24	2SA1037K	TRANSISTOR	
	Q25	DTC144EK	TRANSISTOR	
	Q26	DTC144EK	TRANSISTOR	
	Q27	2SA1037K	TRANSISTOR	
	Q28	2SA1037K	TRANSISTOR	
	Q29	DTC144EK	TRANSISTOR	
	Q30	2SB643R	TRANSISTOR	
	Q31	DTC144ES	TRANSISTOR	
	Q32	2SC2412K	TRANSISTOR	
	Q101	2SD639R	TRANSISTOR	
	Q102	2SD639R	TRANSISTOR	
	Q103	2SA933S(Q)	TRANSISTOR	
	Q104	2SC1741S(QR)	TRANSISTOR	
	Q105	DTC124ES	TRANSISTOR	
	D1	1SS133	DIODE	
	or	MA165	DIODE	
	D2	DAP202K	DIODE	
	D3	1SS133	DIODE	
	or	MA165	DIODE	
	D4	1SS133	DIODE	
	or	MA165	DIODE	
	D5	DAN202K	DIODE	
	D6	DAN202K	DIODE	
	D7	1SS133	DIODE	
	or	MA165	DIODE	
	D8	1SS133	DIODE	
	or	MA165	DIODE	
	D9	1SS133	DIODE	
	or	MA165	DIODE	
	D10	1SS133	DIODE	
	or	MA165	DIODE	
	D101	1SS133	DIODE	
	or	MA165	DIODE	
	D102	UZ8.2BSC	ZENER DIODE	
	R1	QRSA08J-100YN	RESISTOR	10Ω, 1/10W
	R2	QRSA08J-100YN	RESISTOR	10Ω, 1/10W
	R3	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R4	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R5	QRSA08J-100YN	RESISTOR	10Ω, 1/10W
	R6	QRSA08J-100YN	RESISTOR	10Ω, 1/10W
	R7	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R8	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R9	QRSA08J-3R9YN	RESISTOR	3.9Ω, 1/10W
	R10	QRSA08J-3R9YN	RESISTOR	3.9Ω, 1/10W
	R11	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R12	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R13	QRSA08J-3R9YN	RESISTOR	3.9Ω, 1/10W
	R14	QRSA08J-3R9YN	RESISTOR	3.9Ω, 1/10W
	R15	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R16	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R17	QRSA08J-152YN	RESISTOR	1.5KΩ, 1/10W
	R18	QRSA08J-681YN	RESISTOR	680Ω, 1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R19	NVP1301-472N	V RESISTOR, HEAD RESON SP CH-1	4.7KΩ
	R20	QRSA08J-821YN	RESISTOR	820Ω, 1/10W
	R21	NVP1301-472N	V RESISTOR, HEAD RESON SP CH-2	4.7KΩ
	R22	QRSA08J-152YN	RESISTOR	1.5KΩ, 1/10W
	R23	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R24	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R25	QRSA08J-392YN	RESISTOR	3.9KΩ, 1/10W
	R26	NVP1301-472N	V RESISTOR, HEAD RESON EP CH-1	4.7KΩ
	R27	QRSA08J-821YN	RESISTOR	820Ω, 1/10W
	R28	QRSA08J-182YN	RESISTOR	1.8KΩ, 1/10W
	R29	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R30	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R31	QRSA08J-392YN	RESISTOR	3.9KΩ, 1/10W
	R32	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R33	QRSA08J-182YN	RESISTOR	1.8KΩ, 1/10W
	R34	NVP1301-472N	V RESISTOR, HEAD RESON EP CH-2	4.7KΩ
	R35	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R36	QRSA08J-393YN	RESISTOR	39KΩ, 1/10W
	R37	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R38	QRSA08J-331YN	RESISTOR	330Ω, 1/10W
	R39	QRSA08J-393YN	RESISTOR	39KΩ, 1/10W
	R40	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R41	QRSA08J-562YN	RESISTOR	5.6KΩ, 1/10W
	R42	QRSA08J-562YN	RESISTOR	5.6KΩ, 1/10W
	R43	QRSA08J-623YN	RESISTOR	62KΩ, 1/10W
	R44	QRSA08J-330YN	RESISTOR	33Ω, 1/10W
	R45	QRSA08J-121YN	RESISTOR	120Ω, 1/10W
	R46	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R48	QRSA08J-103YN	RESISTOR	10KΩ, 1/10W
	R49	QRSA08J-222YN	RESISTOR	2.2KΩ, 1/10W
	R50	QRSA08J-561YN	RESISTOR	560Ω, 1/10W
	R51	QRSA08J-222YN	RESISTOR	2.2KΩ, 1/10W
	R52	QRSA08J-222YN	RESISTOR	2.2KΩ, 1/10W
	R53	QRSA08J-561YN	RESISTOR	560Ω, 1/10W
	R54	QRSA08J-222YN	RESISTOR	2.2KΩ, 1/10W
	R55	QRSA08J-563YN	RESISTOR	56KΩ, 1/10W
	R56	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R57	QRSA08J-122YN	RESISTOR	1.2KΩ, 1/10W
	R58	QRSA08J-330YN	RESISTOR	33Ω, 1/10W
	R59	QRSA08J-111YN	RESISTOR	110Ω, 1/10W
	R60	QRSA08J-623YN	RESISTOR	62KΩ, 1/10W
	R61	QRSA08J-393YN	RESISTOR	39KΩ, 1/10W
	R62	QRSA08J-331YN	RESISTOR	330Ω, 1/10W
	R63	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R64	QRSA08J-103YN	RESISTOR	10KΩ, 1/10W
	R65	QRSA08J-103YN	RESISTOR	10KΩ, 1/10W
	R66	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R67	QRSA08J-393YN	RESISTOR	39KΩ, 1/10W
⚠	R68	PU52108-150	POSISTOR	15Ω
⚠	or	PU52108-150T	POSISTOR	15Ω
⚠	R69	PU52108-150	POSISTOR	15Ω
⚠	or	PU52108-150T	POSISTOR	15Ω
	R70	QRSA08J-132YN	RESISTOR	1.3KΩ, 1/10W
	R71	QRD161J-472	RESISTOR	4.7KΩ, 1/6W
	R72	QRD161J-393	RESISTOR	39KΩ, 1/6W
	R73	QRD161J-103	RESISTOR	10KΩ, 1/6W
	R76	QRSA08J-103YN	RESISTOR	10KΩ, 1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R77	QRD187J-103	RESISTOR	10KΩ, 1/8W
	R78	QRSA08J-223YN	RESISTOR	22KΩ, 1/10W
	R79	QRSA08J-123YN	RESISTOR	12KΩ, 1/10W
	R80	QRSA08J-392YN	RESISTOR	3.9KΩ, 1/10W
	R81	QRSA08J-472YN	RESISTOR	4.7KΩ, 1/10W
	R82	QRSA08J-102YN	RESISTOR	1KΩ, 1/10W
	R101	QRD161J-121	RESISTOR	120Ω, 1/6W
	R102	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R103	QRD161J-121	RESISTOR	120Ω, 1/6W
	R104	QRD161J-104	RESISTOR	100KΩ, 1/6W
	R105	QRD161J-223	RESISTOR	22KΩ, 1/6W
	R106	QRD161J-473	RESISTOR	47KΩ, 1/6W
	R107	QRD161J-272	RESISTOR	2.7KΩ, 1/6W
	C1	QER61HM-105	E CAPACITOR	1μF, 50V
	C2	QER61HM-105	E CAPACITOR	1μF, 50V
	C3	QER61HM-105	E CAPACITOR	1μF, 50V
	C4	QER61HM-105	E CAPACITOR	1μF, 50V
	C5	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C6	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C7	QER61HM-104	E CAPACITOR	0.1μF, 50V
	C9	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C10	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C11	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C12	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C13	QER61HM-105	E CAPACITOR	1μF, 50V
	C15	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C16	QCY81HK-103	CAPACITOR	0.01μF, 50V
	C17	QCY81HK-103	CAPACITOR	0.01μF, 50V
	C18	PU60733-300	CHIP TRIMM.CAP, SP CH-1 F0	30PF
	C19	PU60733-100	CHIP TRIMM.CAP, SP CH-2 F0	10PF
	C20	PU60733-300	CHIP TRIMM.CAP, EP CH-1 F0	30PF
	C21	QCY81HK-103	CAPACITOR	0.01μF, 50V
	C22	PU60733-100	CHIP TRIMM.CAP, EP CH-2 F0	10PF
	C23	QCY81HK-103	CAPACITOR	0.01μF, 50V
	C24	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C25	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C26	QER60JM-476	E CAPACITOR	47μF, 6.3V
	C27	QER60JM-476	E CAPACITOR	47μF, 6.3V
	C28	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C29	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C30	QER61HM-105	E CAPACITOR	1μF, 50V
	C31	QER61HM-105	E CAPACITOR	1μF, 50V
	C32	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C33	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C34	QER61HM-105	E CAPACITOR	1μF, 50V
	C35	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C36	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C37	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C38	QETB1CM-476	E CAPACITOR	47μF, 16V
	C39	QFN41HJ-103	M CAPACITOR	0.01μF, 50V
	C40	QCC11EJ-103	CAPACITOR	0.01μF, 25V
	C41	QETB1HM-105	E CAPACITOR	1μF, 50V
	C42	QCSA1HJ-680	CAPACITOR	68PF, 50V
	C43	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C44	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C45	QCSA1HJ-8R0	CAPACITOR	8PF, 50V
	C46	QCSA1HJ-8R0	CAPACITOR	8PF, 50V
	C47	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C48	QCSA1HJ-680	CAPACITOR	68PF, 50V
	C49	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C50	QETC1HM-105	E CAPACITOR	1μF, 50V
	C51	QCC31EJ-103	CAPACITOR	0.01μF, 25V
	C52	QFN31HJ-103	M CAPACITOR	0.01μF, 50V
	C53	QETB1CM-476	E CAPACITOR	47μF, 16V
	C54	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C55	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C56	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C57	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C58	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C59	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C60	QEN51HM-474	NP E CAPACITOR	0.47μF, 50V
	C61	QEN61HM-224	NP E CAPACITOR	0.22μF, 50V
	C62	QCSA1HJ-681	CAPACITOR	680PF, 50V
	C63	QETC1CM-106	E CAPACITOR	10μF, 16V
	C64	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C65	QCC11CK-104	CAPACITOR	0.1μF, 16V
	C101	QCT25UJ-181	CAPACITOR	180PF
	C103	QCBB1HJ-820	CAPACITOR	82PF, 50V
	C105	QCBB1HJ-820	CAPACITOR	82PF, 50V
	C106	QCSB1HJ-560	CAPACITOR	56PF, 50V
	C107	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C108	QCF31HP-223	CAPACITOR	0.022μF, 50V
	C109	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	L1	PU59152-8R2J	PEAKING COIL	8.2μH
	L2	PU59152-8R2J	PEAKING COIL	8.2μH
	L3	PU48530-101K	PEAKING COIL	100μH
	L4	PU59153-101K	PEAKING COIL	100μH
	L5	PU59152-100J	PEAKING COIL	10μH
	L6	PU59152-100J	PEAKING COIL	10μH
	L7	PU48530-101K	PEAKING COIL	100μH
	L8	PU59152-6R8J	PEAKING COIL	6.8μH
	L9	PU59152-390J	PEAKING COIL	39μH
	L10	PU59152-390J	PEAKING COIL	39μH
	L11	PU59152-6R8J	PEAKING COIL	6.8μH
	L12	PU48530-101K	PEAKING COIL	100μH
	L15	PU48530-101K	PEAKING COIL	100μH
	L101	PU48530-3R3K	PEAKING COIL	3.3μH
	L102	PU48530-3R3K	PEAKING COIL	3.3μH
	L103	PU48530-101K	PEAKING COIL	100μH
	L104	PU48530-101K	PEAKING COIL	100μH
	T101	PU56175	S.TRANS	
	BKT1	PQ43388	BRACKET(2)	
	BKT2	PQ43389-1-1	BRACKET(3)	
	SCW1	SPSP2606Z	SCREW, X2	
	SCW2	SPSP2606Z	SCREW, X2	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	SLD1	PU60408	SHIELD CASE
	SLD2	PU60409	SHIELD COVER
	SLD3	PU60410	SHIELD PLATE
	SLD4	PQ32496	SHIELD CASE
	SLD5	PQ32652	SHIELD PLATE
	SPC1	WBS2600Z	T.L.WASHER, X2
	SPC2	PQM30029-24	SPACER, X2
	TP1	PU56008	TEST-PIN, X12
	CN1	PU58844-4	CAP HOUSING
	CN2	PU58844-6	CAP HOUSING
	CN3	PU58844-5	CAP HOUSING
	CN4	PU58844-2	CAP HOUSING
	CN5	PU58844-4	CAP HOUSING
	CN6	PU58844-8	CAP HOUSING
	CN7	PU56258-10	CAP HOUSING
	CN8	PU58844-2	CAP HOUSING
	CN10	PU58844-2R	CAP HOUSING

* * *

25. DECK TERMINAL BOARD ASSEMBLY ⟨51⟩⟨53⟩

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB20237A-02	DECK TERMINAL BOARD ASSY

— DECK TERMINAL BOARD ASSEMBLY ⟨51⟩ —

REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB20237A1-01	DECK TERMINAL BOARD ASSY	
R1	QRD181J-151	RESISTOR	150Ω,1/8W
R3	QRD181J-331	RESISTOR	330Ω,1/8W
PHS1	PU60271	PHOTO INTERRUPTER	
CN1	PU58798-20	CAP HOUSING	

— REC SAFETY BOARD ASSEMBLY ⟨53⟩ —

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA2	PB20237A3-01	REC SAFETY BOARD ASSY
S1	PU58644-1-3	REC SAFETY SWITCH

* * *

26. RELAY BOARD ASSEMBLY ⟨52⟩

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	PB20237A2-02	RELAY BOARD ASSY
	LC1	PU59736-223	N FILTER
	LC2	PU59736-223	N FILTER
	WR1	PW30113-G0ABZ62	PARALLEL WIRE
	WR1	or PW30118-G0ABZ62	PARALLEL WIRE

* * *

27. END SENSOR BOARD ASSEMBLY ⟨54⟩

REF No.	PART No.	PART NAME, DESCRIPTION
PWBA	PB20237A4-01	END SENSOR BOARD ASSY
Q1	PN268R-NC	PHOTO TRANSISTOR
HD1	PQ31047-1-4	END SENSOR HOLDER
CN1	PU59945-102	WIRE SOCKET

* * *

28. CASSETTE HOUSING BOARD ⟨56⟩

REF No.	PART No.	PART NAME, DESCRIPTION	
PWB1	PB30097	C. HOUSING BOARD	
Q1	PN268R-NC	PHOTO TRANSISTOR	
R1	QRD162J-471	RESISTOR	470Ω, 1/6W
R2	QRD162J-473	RESISTOR	47KΩ, 1/6W
PHS1	PU58879	PHOTO INTERRUPTER	
TH1	ERT-D2FHJ503S	THERMISTOR	
CN1	PU59555-107	CAP HOUSING	

SECTION 6
TECHNICAL INFORMATIONS

6.1 MECHANISM CONTROL CPU PIN FUNCTIONS

6.1.1 IC101 pin function

Pin No.	Symbol	I/O Format	Label	IN/OUT	Function
1	VDD	–	VDD	IN	System power
2	Vref	–	Vref	IN	For AD/DA
3	DA	Analog	D-A	OUT	For reel motor drive
4	PWM	PWM	PWM	OUT	For reel motor drive
5	Port 6 4	N-channel open drain	Hi-Fi REC ST	OUT	H : Hi-Fi REC L : Normal
6	3		P. CTL	OUT	L : Power ON H : Power OFF
7	2		SLOW PULSE	OUT	Slow : Frame advance Pulse : Capstan motor control
8	1		FLY ON	OUT	L : Flying erase head ON H : Flying erase head OFF
9	0		FWD/REV	OUT	Counter direction – H : Reverse L : Forward
10	Port 4 7		SOL IN	OUT	Solenoid pull-in time – L : 700 ms H : Normal
11	6		WRITE	OUT	H : for 3 seconds during index erase
12	5		INDEX	IN/OUT	L : Normal H : Index (Write-in and Detect)
13	4		S/S MODE	OUT	L : Slow/Still
14	3		FRAME SERVO	OUT	H : Auto, ON/OFF output – ON, L : REC P
15	2		DRUM ON	OUT	H : Drum rotation
16	1		VP ON (L)	OUT	L : Special playback H : Normal
17	0		CLK	OUT	Clock for serial data outputs L, S, V, A1, A2 and DATA
18	Port 3 7		LED DATA	OUT	12-bit serial data for front LED lighting
19	6		C CLK	IN/OUT	8-bit serial bus with counter CPU
20	5		C DATA	IN/OUT	8-bit serial bus with counter CPU
21	4		A. DATA 1	OUT	12-bit serial data for audio control
22	3		A. DATA 2	OUT	16-bit serial data for audio control
23	2		CAP FG	IN	SP/EP/LP detect for backspace
24	1		V. DATA	OUT	16-bit serial data for video circuit control
25	0		S. DATA	OUT	16-bit serial data for servo circuit control
26	INT-1		REMOTE	IN	Remote controller interrupt
27	CN VSS		CN VSS	IN	Always ground
28	RESET		RESET (L)	IN	AC IN reset
29	X IN		X IN	IN	System clock 6 MHz
30	X OUT		X OUT	OUT	System clock 6 MHz
31	NC		EX CLK	–	Not connected
32	CN VSS		VSS	IN	Ground
33	Port 5 7	Input latch	JOG PULSE	IN	Jog rotation detect pulse input, used for frame advance and frame number setting
34	6		CTL PULSE	IN	Still timing from SP/EP/LP and transport mode
35	5		SP FG	IN	FF/REW speed control, reel voltage select during Search Reverse
36	4		TU FG	IN	FF/REW speed control, rotation detect
37	3	N-channel open drain	UL SW (L)	IN	Cassette load and unload
38	2		C. PULSE	IN	Remote pause input – L : Pause ON, H : Pause OFF
39	1		LSA	IN	Mechanism mode detect
40	0		LSB	IN	Mechanism mode detect
41	Port 1 7		REC SAFE (L)	IN	Detects erase protect tab – H : Tab absent
42	6		7/11	IN	Selects maximum Search speed for 7X or 11X (SP only)
43	5		SPEED CMP	IN	H : Capstan speed stable within about 15% during Search
44	4		SUPER	IN	Detects S-VHS ID hole
45	3		START S (L)	IN	Detects leader tape
46	2		END S (L)	IN	Detects trailer tape
47	1		SOL HOLD	OUT	H : Solenoid hold
48	0		SERVO	OUT	L : Normal H : Capstan rotating
49	Port 0 7		LCM 3	OUT	Loading and cassette motor control
50	6		LCM 2	OUT	Loading and cassette motor control
51	5		LCM 1	OUT	Loading and cassette motor control
52	4		CAP V	OUT	H : Normal L : 11X Search speed
53	3		CAP +	OUT	L : Capstan forward
54	2		CAP –	OUT	L : Capstan reverse
55	1		REL +	OUT	L : Reel forward
56	0		REL –	OUT	L : Reel reverse
57	Port 2 7	C MOS	V. FF	IN	Drum rotation detect, REC timing, edit timing
58	6		S. DET OUT	OUT	H : S-VHS playback
59	5		DROP OUT	OUT	L : Hi-Fi FM loss or normal audio only
60	4		JOG F/R	IN	JOG direction – L : Reverse
61	3		STR	IN	TM bus
62	2		DATA 2	IN/OUT	TM bus
63	1		DATA 1	IN/OUT	TM bus
64	0		DATA 0	IN/OUT	TM bus

Table 6-1-1 IC101 pin function

6.2 JOG/TIMER CPU PIN FUNCTIONS

6.2.1 IC101 pin function

Pin	Symbol	I/O Format	Label	I/O	Function
1	Port 1 3	CMOS	NC	I	
2	2	Schmitt trigger	PRO SW	I	Processor switch input (H: ON, L: OFF)
3	1	Input	SWAP MODE	I	A/C code switch input during Swap (L: E, H: N)
4	0		EE SW	I	EE switch input (H: ON)
5	PTH 3	Threshold	NC		
6	2	Variable voltage	JSA	I	Jog/shuttle waveform input
7	1	Analog input JSB	I		
8	0		STL-L	I	
9	TI 0		NC		
10	TI 1		NC		
11	Port 2 3	CMOS	C. MUTE	O	H: color mute in processor mode
12	2	Push-pull	SWAP OUT	O	Remote code output to Swap connector
13	1	Output	JOG F/R	O	Jog/shuttle direction (L: reverse)
14	0		JOG PULSE	O	Jog rotation pulse
15	Port 0 3	CMOS	NC		Not connected
16	2		TIM SET	I	H: timer CPU used by Jog/shuttle
17	1	Schmitt	PRO ON (L)	I	Processor mode detect L: processor ON
18	0	Input	SW 5V	I	Power ON/OFF detect
19	Port 12 3	N channel	KEY OUT 4 (L)	O	Key scan matrix output
20	2	open drain	KEY OUT 5 (L)	O	'
21	1		KEY OUT 6 (L)	O	'
22	0		KEY OUT 7 (L)	O	'
23	Port 13 3		KEY OUT 0 (L)	O	'
24	2		KEY OUT 1 (L)	O	'
25	1		KEY OUT 2 (L)	O	'
26	0		KEY OUT 3 (L)	O	'
27	3		NEGA	O	H: color reversal in processor mode
28	2		IR KILL (L)	O	L: remote code output to mainframe
29	1		J/S PWR (L)	O	Jog/shuttle 12 V power ON/OFF, L: ON
30	0		R CODE (L)	O	Remote code output to mainframe
31			NC		
32			VDD		System power (5 V)
33	Port 3 3	CMOS	D/A MOSAIC 4	O	Variable mosaic output in processor mode
34	2	Push-pull	D/A C LEVEL 4	O	Variable color level in processor mode
35	1	Output	D/A (I) 4	O	Variable I axis in processor mode
36	0		D/A (Q) 4	O	Variable Q axis in processor mode
37	Port 4 3	CMOS	KEY IN 3	I	Key scan matrix
38	2		KEY IN 2	I	'
39	1		KEY IN 1	I	'
40	0		KEY IN 0	I	'
41	Port 5 3		KEY IN 7	I	'
42	2		KEY IN 6	I	'
43	1		KEY IN 5	I	'
44	0		KEY IN 4	I	'
45	RESET		RESET (L)	I	L: reset
46	X2		X2		System lock (4.19 MHz)
47	X1		X1		'
48	Port 6 3	CMOS	D/A (Q) 3	O	Variable Q axis in process mode
49	2	Push-pull	D/A (Q) 2	O	'
50	1	output	D/A (Q) 1	O	'
51	0		D/A (Q) 0	O	'
52	Port 7 3		D/A (I) 3	O	Variable I axis in process mode
53	2		D/A (I) 2	O	'
54	1		D/A (I) 1	O	'
55	0		D/A (I) 0	O	'
56	Port 8 3		D/A C LEVEL 3	O	Variable color level in process mode
57	2		D/A C LEVEL 2	O	'
58	1		D/A C LEVEL 1	O	'
59	0		D/A C LEVEL 0	O	'
60	Port 9 3		D/A MOSAIC 3	O	Variable mosaic in process mode
61	2		D/A MOSAIC 2	O	'
62	1		D/A MOSAIC 1	O	'
63	0		D/A MOSAIC 0	O	'
64	VSS		GND		Ground

Table 6-2-1 IC101 pin function

6.2.2 IC4 pin function

Pin	Symbol	I/O Format	Label	I/O	Function
1	S 3	CMOS	KS 3	O	Key scan matrix
2	S 2		KS 2	O	'
3	S 1		KS 1	O	'
4	S 0		KS 0	O	'
5	Port 0 0	Schmitt	P DOWN	I	Power loss detect input
6	1	Input	AFT +	I	AFC up request
7	2		AFT -	I	AFC down request
8	3		SYNC DET	I	Sync L/H from tuner
9	Port 1 0		RCV IN	I	Remote input (incl. key)
10	1		JOG PULSE	I	Jog pulse input
11	2		CNT BUSY	I	Busy signal input for display data from counter CPU
12	3		DEW S	I	H: dew detect
13	Port 2 0	CMOS	STROBE	O	Strobe signal to mechacon bus
14	1		EAROM CS	O	Mode data switch to EAROM
15	2		EAROM S-CLK	O	Shift lock output
16	3		EAROM PCLR	O	Reset output to EAROM
17	Port 3 0		DATA 0	I/O	3-bit TM bus
18	1		DATA 1	I/O	'
19	2		DATA 2	I/O	'
20	3		EAROM S DATA	I/O	EAROM
21	Port 6 0		KEY 0	I	Key scan matrix
22	1		KEY 1	I	'
23	2		JOG UP/DOWN	I	Jog up/down (FWD/REV)
24	3		P MUTE	O	H: picture mute output
25	Port 4 0		A MUTE	O	H: audio mute output
26	1		PLL S-CLK	O	PLL clock output
27	2		S-DATA	O	PLL data output
28	3		LOAD	O	PLL mode switch
29			Not connected		
30	X1		X IN	I	Main system clock (4.19 MHz)
31	X2		X OUT	O	'
32	VSS		VCC	I	Ground
33	XT1		XT IN	I	Sub-system clock (32 kHz)
34	XT2		XT OUT	O	'
35	Port 5 0	CMOS	CNT CE (L)	O	Display data CE (L) to counter CPU
36	1	CNT CLK (L)	CNT CLK (L)	O	Display data clock output to counter CPU
37	2	CNT S-DATA	CNT S-DATA	O	Display data output to counter CPU
38	3	TEL ADAPTER	TEL DAAPER	O	Answer signal to telephone adapter
39	Reset		RESET (L)	I	Reset input
40			Not connected		
41			Not connected		
42			Not connected		
43			Not connected		
44			Not connected		
45			Not connected		
46			Not connected		
47			Not connected		
48			Not connected		
49			Not connected		
50	T10/PH3	PCH	JOG ON	O	Jog pulse request to jog CPU
51	T11/PH2		TEL LED	O	TEL LED output
52			Not connected		
53			Not connected		
54			Not connected		
55	VPRE		GND	I	FDP controller/driver output buffer power supply
56	VLOAD				FDP controller/driver pull-down
57			Not connected		
58			Not connected		
59			Not connected		
60			Not connected		
61			Not connected		
62			Not connected		
63			Not connected		
64	VDD		VDD	I	System power (5 V)

Table 6-2-2 IC4 pin function

6.3 FDP CPU PIN FUNCTION

6.3.1 Counter CPU pin function

Pin No.	Symbol	I/O Format	Label	IN/OUT	Function
1	Port 8 0	P-channel	12 GA	OUT	FDP grid output
2	1		10 GA	OUT	FDP grid output
3	2		9 GA	OUT	FDP grid output
4	3		8 GA	OUT	FDP grid output
5	Port 9 0		7 GA	OUT	FDP grid output
6	1		5 GA	OUT	FDP grid output
7	2		4 GA	OUT	FDP grid output
8	3		3 GA	OUT	FDP grid output
9	Port 2 0		2 GA	OUT	FDP grid output
10	1		1 GA	OUT	FDP grid output
11	2		6/11 GA	OUT	FDP grid output
12	3		WE	OUT	External S-RAM WE pin: controls read/write
13	Port 3 0		EX CLK	OUT	External expander clock
14	1		EX DATA	OUT	External expander data output
15	2		T2 OUT	OUT	T2 output connector (when used for editing with T output)
16	3		T1 OUT	OUT	T1 output connector (when used for editing with T output)
17	Port 0 0	C-MOS	MD 0	IN/OUT	S-RAM data read/write
18	1		MD 1	IN/OUT	S-RAM data read/write
19	2		MD 2	IN/OUT	S-RAM data read/write
20	3		MD 3	IN/OUT	S-RAM data read/write
21	Port 1 0		C. DATA	IN/OUT	Mechacon bus data
22	1		C. CLK	IN/OUT	Mechacon bus clock
23	2		CG DATA	IN/OUT	Serial data output for character
24	3		CG CLK	IN/OUT	Serial clock output for character generator control
25	Port 4 0		CTL P1	IN/OUT	Control pulse from servo
26	1		JOG P	IN/OUT	Pulse from jog CPU
27	2		CP OUT	IN/OUT	Camera pause command
28	3		CNT CLK	IN/OUT	Timer bus clock
29	Port 5 0		CNT CLK	IN/OUT	Timer bus clock
30	1		BUSY	IN/OUT	Timer bus busy
31	CN VSS		EX RES	IN/OUT	External reset (L: active)
32			VSS	IN	GND
33			X	OUT	External circuit for internal high speed clock generator
34			EX	IN	External circuit for internal high speed clock generator
35			SENSE	IN	Interrupt for low voltage detector
36			WDOGEN	IN	Used at VCC level
37			XL	OUT	External circuit for internal low speed clock generator
38			EXL	IN	External circuit for internal low speed clock generator
39	Port 6 0	C-MOS	CNT CS	IN	CE (L) for timer bus
40	1		CNT DATA	IN	Data for timer bus
41	2		C DET OUT	IN	Sync. detect
42	3		D. FF OUT	IN	Drum flipflop input
43	Port 7 0		JOG F/R	IN	Jog direction (H : REW)
44	1		REV	IN	Tape direction (H : REV)
45	2		T2 IN	IN	T2 input
46	3		T1 IN	IN	T1 input
47			–30 V		
48	Port A 0	P-channel	a	OUT	FDP segment output
49	1		b	OUT	FDP segment output
50	2		c	OUT	FDP segment output
51	3		d	OUT	FDP segment output
52	Port B 0		e	OUT	FDP segment output
53	1		f	OUT	FDP segment output
54	2		g	OUT	FDP segment output
55	3		h	OUT	FDP segment output
56	Port C 0		i	OUT	FDP segment output
57	1		j	OUT	FDP segment output
58	2		k	OUT	FDP segment output
59	3		l	OUT	FDP segment output
60	Port D 0		m	OUT	FDP segment output
61	1		n	OUT	FDP segment output
62	2		o	OUT	FDP segment output
63	3		p	OUT	FDP segment output
64			VCC	IN	

Table 6-3-1 IC2 pin function